

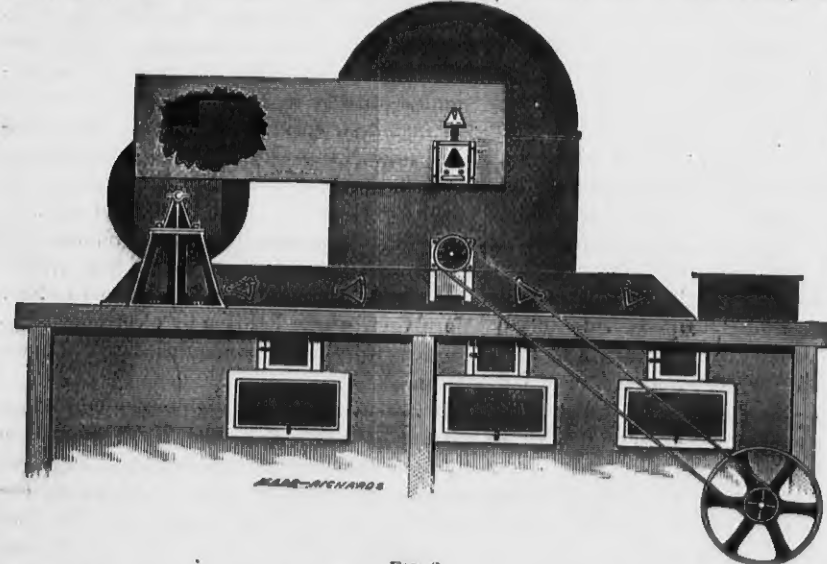
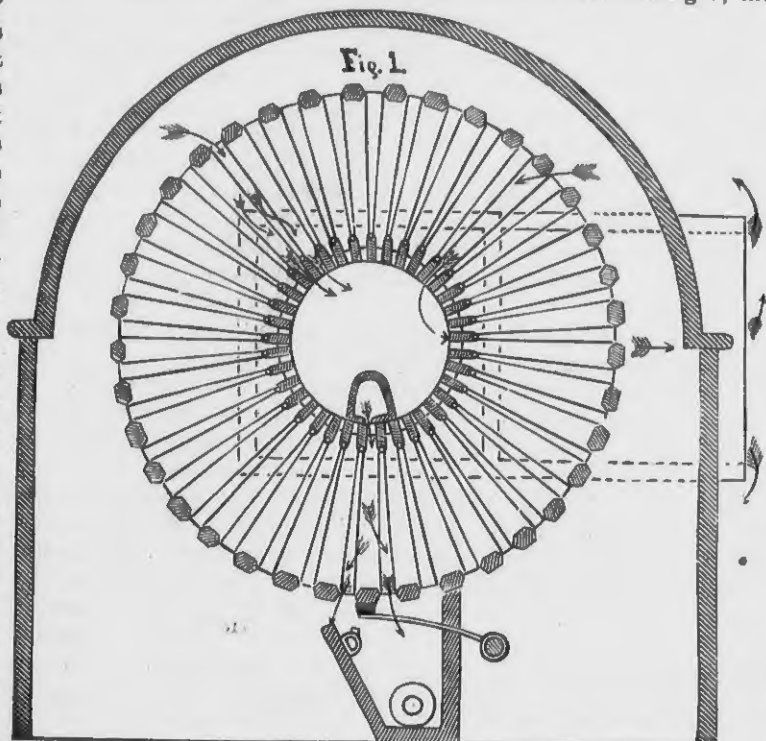
The United States MILLER

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THE PRINZ PATENT DUST COLLECTOR.

The importance both to the health of the miller, the safety of the building, and several other reasons, made it necessary that as much of the ambient dust of the mill as possible should be collected into a receptacle specially adapted to hold it. Several attempts have been made to do this within the past twenty years or so, and many patents have been issued on contrivances having this object in view, but only with partial success until the perfect machine known as the Prinz patent dust collector was introduced. The cuts on this page will give a good idea of the principles on which this machine works.

Fig. 1 shows the operation of the machine. By sucking the air through the collector it is drawn to the center of the balloon through all these sections, which are covered with woolen flannel. The dust and impurities are carried off with this air, strike the cloth, and adhere to it. As the section that is being cleaned passes under the air tube, a current of clean air is drawn into the tube, and passes down into the section on the reverse side of the cloth where the impurities are lodged, serving with the aid of the repeated knocking of the hammer to effectually clean the cloth; many small particles of the dust and chop become so firmly attached to the cloth that the mere shaking or jarring of the cloth would not remove them, but by forcing a current of air back through the cloth from the



opposite side, the adhering dust will be driven loose from the cloth and dropped into conveyors underneath to be conveyed away. Figs. 2 and 3 illustrate the connection of the dust collector with any purifier, but Smith's being the one in most general use the cut of that machine is the one used in describing the working of the dust catcher. In describing the mode of operation the manufacturers say:

Remove the fan from purifier and place the dust collector in its place. The fan can then be put on the rear or front of dust collector, as most convenient to drive the same, the connection being made as shown in cut, by spout to each side of dust collector, boxes being placed there for this convenience.

When the location is such that collectors can not be placed on the top of the purifier and the connections be made as described in the foregoing, a collector with fan attachment can be used and located where most convenient to make trunk connections for one or more purifiers, as shown in Fig. 3.

In such cases the fan or fans remain on purifiers in their original position and a spout is drawn from them to the dust collector, connecting with the same as shown in Fig. 3; the

fans of purifiers blowing, while the fan on dust collector is sucking the air through. It is understood that the principle of our dust collector is that of drawing through and not blowing in. However, by the above mentioned operation, the results accomplished are the same.

A great many millers find it to be a great improvement to use collectors on stones, as it prevents moisture from accumulating around the curb. It is also found convenient in rolls, and it aids bolting considerably, besides removing all the fine material that lodges around the base of the roll, and prevents any dust from escaping when the slides and covers are raised, thus aiding in the cleanliness of the mill and its freedom from dust. The removal of the dust from the

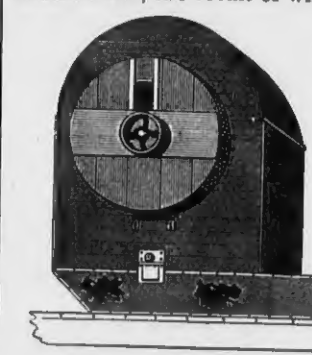
grain cleaning machinery has become a desideratum, and this machine has been found a perfect success for this purpose by connecting it in a similar manner, as shown by Fig. 3. The power required to run it is very little, the fans requiring no more power than ordinary fans. The machine is one of the necessary adjuncts of the improved and advanced system of milling, and no mill can be considered fully equipped with modern machinery that is without it. Further particulars may be obtained by addressing Milwaukee Dust Collector Co., Milwaukee, Wis.

INSURANCE.

A meeting of Mutual Underwriters, at which resolutions looking to a decrease of risk on mills and factories and a proportionate de-

crease of premium, took place at the Grand Pacific Hotel, in Chicago, Sept. 15. The following gentlemen were present: Messrs. H. G. McPike, P. A. Montgomery, George S. Roper, C. P. Shove, Charles B. Funston, W. E. Smith, Henry A. Staats, William B. Ferguson, Charles H. Spencer, E. C. Gay, J. A. Barnes, J. F. Clann, C. E. Worthington, J. S. Dumbach, J. S. Montgomery, John Schuette, P. B. Armstrong, representing the following companies: Illinois Mutual, Alton, Ill.; Western Manufacturers' Mutual, Chicago; Mississippi Valley Manufacturers' Mutual, Rock Island, Ill.; Millers' and Manufacturers' Mutual, Minneapolis, Minn.; Manufacturers' Merchants' Mutual, Rockford, Ill.; Corn City Mutual, Toledo, O.; Van Wert Mutual, Van Wert, O.; Delaware Mutual, Delaware, O.; Capital City Mutual, Columbus, O.; Forest City Mutual, Cleveland, O.; Mutual Mill, Chicago; Millers' Mutual, Manitowoc, Wis.; Canton Mutual, Canton, O.; Mutual Fire, New York city; Commonwealth, Decatur, Ill.; Phoenix Mutual, Cincinnati, O., and Monitor Fire Association of Cincinnati.

The meeting was called to order by the chairman, and after some routine business the annual election of officers was proceeded with and resulted in the unanimous re-election of Mr. H. G. McPike of Alton, Ill., as president of the association; Mr. C. P. Shove of Minneapolis, as vice-president, and Mr. W. B. Ferguson of Rock Island, as secretary and treasurer; Messrs. P. A. Montgomery, William E. Smith and George S. Roper, were appointed to act as an executive committee. A long and important discussion took place as to the best means of preventing heavy losses by fires in mills and manufacturing establishments, the result of which was that the



following resolutions were unanimously passed: Whereas, All holders of policies of the Western Mutual Underwriters' Association are aware, without any special statement, that they are prorated on the losses of each; therefore,

Resolved, That the executive committee and secretary be and are hereby requested to correspond with the different manufacturers of mill machinery with a view to have them build fire-proof machinery; and that they are hereby authorized to give their recommendation to the manufacturers making the most fire-proof machinery of any kind, in the name of the Western Mutual Underwriters' Association.

Resolved, That from and after this date the companies members of this association will not write or renew any policy of insurance on or in any building using steam for heating or power in which the pipes are not fully protected where they come in contact with wood or other combustible material on passing through floors or partitions or in any drying-house or heating or veneer boxes. All drying-rooms or heating boxes should be lined with galvanized iron or roofing tin.

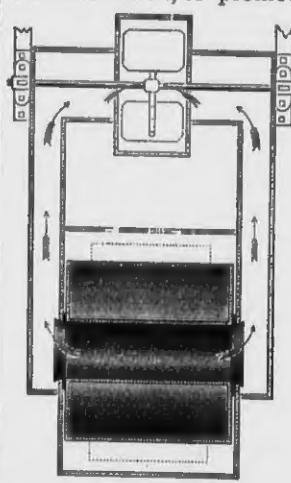
Resolved, That the companies members of this association will not write or renew any policy of insurance on or in any building wherein the oily waste or rags are not deposited in self-closing, fire-proof cans when not in actual use, such cans to be emptied daily. (To enforce this rule it is recommended that employees be fined for the first

offense, and discharged upon a second. Construction of can: Five gallon, galvanized iron, riveted seams, lid to be closed with spring; on legs not less than three inches in length.)

Resolved, That the use of open and movable lights be strictly prohibited. A bull's-eye lantern is recommended in place of the old flaming torch.

Resolved, That the companies composing this association will not write or renew any policy of insurance on any manufacturing establishment wherein thorough and honest sweeping is not enforced daily, and all floor-sweepings and accumulated rubbish removed from the building before closing at night.

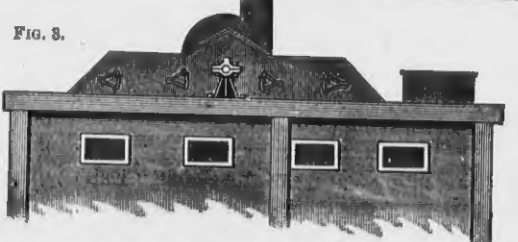
Resolved, That the companies members of this association, to promote and encourage the introduction into mills and other buildings of automatic sprinklers of approved construction and pattern, with automatic fire-alarms attached, will make the following reductions in the rate of insurance: With an adequate supply of pipes and one source of water supply, at constant pressure, 15 per cent.; with two



sources of water supply, both reliable, 25 per cent.

Resolved, That the report of the inspectors of companies members of this association be reduced to writing, and in all cases a copy of such report be mailed to the respective parties insured.

Resolved, That this association recommends to owners of mills and factories the use of perforated water-pipes for outside protection at all available points; and for fire doors and shutters this association unqualifiedly recommends the use of double-battened doors laid diagonally and covered with roofing tin, with under joints securely fastened with nails at least one inch long, hung on strap-iron hinges extending the full width of the door, and bolted through and through; or a sliding or hanging door of the same construction, both covering all the door frame or other wood ex-



posure. Linen hose for inside use and cotton rubber-lined hose for outside use, is earnestly recommended.

Resolved, That we recommend to all manufacturers using steam power that they should attach a chain to the safety-valve, passing to the outside of the building in such manner that in case of fire the valve can be opened from the outside, thus flooding the boiler-house with live steam and averting the danger of explosion.

Resolved, That the executive committee be requested to suggest to the association at its next meeting some method by which a bureau of information can be established on behalf of the companies represented, the object of the said bureau being to accumulate inspectors' reports on all desirable manufacturing property in the United States.

Resolved, That these resolutions be printed and copies sent to each policy-holder of the respective companies.

The meeting adjourned until the third Wednesday in March, 1884, when Chicago will again be the rendezvous.

It will be seen that sixteen of the mutual companies of the northwest voted to reduce the rate to mill and factory owners 25 per cent., provided that they laid in automatic sprinklers with an adequate supply of pipes and water. Another suggestion offered was that the safety-valves of engines have a chain connected with the outside of the building, so that in case of fire the boiler-room could be flooded with steam and the risk of explosion diminished. The decrease of risk is proportionate to the decrease of premium, and the association utterly refused to insure property insufficiently protected.

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MILWAUKEE, OCTOBER, 1888.

ANNOUNCEMENT:

WM. DUNHAM, Editor of "The Miller," 69 Mark Lane, and HENRY F. GILLIS & Co., 449 Strand, London, England are authorized to receive subscriptions for the UNITED STATES MILLER.

We send out monthly a large number of sample copies of the UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. Send us One Dollar in money or stamps, and we will send THE UNITED STATES MILLER to you for one year.

The United States Consuls in various parts of the world who receive this paper, will please oblige the publishers and manufacturers advertising therein, by placing it in their offices where it can be seen by those parties seeking such information as it may contain. We shall be highly gratified to receive communications for publication from Consuls or Consular Agents everywhere, and we believe that such letters will be read with interest, and will be highly appreciated.

ATTENTION FLOUR MILL OWNERS.

We desire all flour-mill owners to write to us, giving us their correct address, with post-office, county and state. Please state also capacity of mill in barrels per day of 24 hours, what kind of power is used, and whether stones or rollers or both stones and rollers are used. Your compliance with above request will confer a benefit not only on us and the mill-furnishers and flour dealers, but on yourself. Address, as early as convenient,

E. HARRISON CAWKER,

Pub. of Cawker's American Flour Mill Directory,
116 & 118 Grand Ave.,
Milwaukee, Wis.

FLOUR MILL OWNERS—Please send us your address, with capacity of your mill in barrels per day of 24 hours, and also state whether you use steam or water-power, or both.

THE Pennsylvania Millers' Association will hold their Sixth Annual Convention at Harrisburgh, Pa., Oct. 9th, 1888. Pennsylvania millers generally are earnestly invited to be present. B. F. Isenberg of Huntingdon, Pa., is President, and Landis Levan, Sec'y of the Association.

THE Insurance Companies have adjusted the loss by fire on the Star Mills of Milwaukee, owned by the H. Nunnemacher Co. The amount of insurance paid was \$23,000. The total loss is figured at about \$25,000. The mill will be put in running order again just as soon as possible.

WE recently received a pleasant call from Clifford F. Hall Esq., editor of *The Modern Miller*, (late *Grain Cleaner*). We had the pleasure of congratulating Bro. Hall in person on the handsome appearance of his paper. It is a beauty, and we believe honestly deserves the liberal support and patronage of the reading and advertising public.

An interesting feature of the Chicago Exposition is that of the Case Manufacturing Co., of Columbus, Ohio, which will have a large display of their machinery on exhibition, nearly all in operation. Their "Bismarck" four-roller mill will be in motion, and will have an elevator conveying up and constantly pouring into the feed-box a stream of middlings, so as to show the method of operating this feed, about which so much is being said. This will be an interesting feature to all visiting millers. Wm. E. Catlin & Co., the agents in Chicago, will have charge of the display.

A correspondent writing from Minneapolis, Minn., under date of Sept. 21, says:

The milling year closed August 31, and the simple statement of the product of the mills for the first eight months of the year as compared with 1882 will give a good idea of the activity in this line. Total number of barrels produced in 1883 (eight months), 2,183,157; total number of barrels produced in 1882 (eight months), 1,442,589. During the first four or five months prices of flour gave a good return to manufacturers, but since that time until the decline in wheat the business was not remunerative. The new crop year opens, however, with better prospects for manufacturers, and by the 1st of October wheat will be arriving in large quantities. All the mills have been put in perfect order for fall business. If speculation does not run the price of wheat above its legitimate value for milling a very active

fall may be looked for in the milling district, and the year's product will reach 4,000,000 barrels, and may exceed that. Mill owners are in good heart and prepared for the fall run.

QUERY:

Do Farmers Have too Little or too Much Rest?

The writer of this, not long since had a conversation with a veteran and successful farmer in Waukesha county, one of the most beautiful counties in the "Badger State." "Why is it," I asked, "farmers are almost always accused of the pernicious habit of growling about the state of their affairs? I know, from experience, that this is true, and no matter how well their crops or dairy have succeeded that there is, with few exceptions, that everlasting growl."

"Well, my friend," said he, "I have often thought about that myself, and I will tell you my opinion about it. The business of the farmer in many respects is very disagreeable, while I admit, with pleasure, that there are many pleasant episodes in it. You know that when our seeding time comes in, we have got to rush. We have no time to eat, sleep or amuse ourselves in any manner, and that in itself is enough to organize a growling disposition. Then we, of course, have our world of troubles with our stock and poultry incident to the spring season, and then comes haying, berries, and if you live in the neighborhood of a town of any importance, your "garden truck" must be continually looked after. During this time you are always nervous about the weather and the insects that may or are attacking your crops, and it is no more than natural that after looking over, for instance, your "potato patch" and sprinkling it thoroughly with poison, or yet worse, knocking the bugs off from the vines with a stick into a pail, that you will return to the house, and, to use plain words, d—n farming, anyway. Your neighbors are having the same experience as you are, and whenever you meet them it is only perfectly natural that your conversation should turn to those subjects which have most aggravated you, and if there is any subject that a man will talk about it is one that has annoyed him. Now, the greatest part of the practical farmer's work must be done in a short space of time, and during that time everybody in connection with the farm are compelled to do without the amount of rest that Nature requires."

"As any physician will tell you, if you disturb the natural amount of rest that a person should enjoy he must and will, without exception suffer therefrom. There is no escape from it. All these troubles affect the farmer class and too often they have little else to talk about when they meet each other, or dealers, and that is the reason, I think, why they are so often accused of being chronic growlers."

"It is true that a good farmer may have a variety of information and amusement, but there is a great proportion of them that do not "know how," and until that can be aided by the newspapers, Mr. Editor, you must not object to hearing an occasional growl."

WATER POWER AND WATER WHEELS.

(By T. C. Alcott, of Mt. Holly, N. J., Manufacturer of Water Wheels.)

When or by whom the gravity of water was first made use of for mechanical purposes, will, in all probability, ever remain unknown. But from far away in the past, until the present time, it has been the favorite servitor of man. Thousands upon thousands of our fellow beings derive a livelihood through its agency, and its effect of wealth is presented in unmistakable signs all over our land. The work of properly utilizing the power of this agent is one of great importance. From the rude wheels of the Asiatics, down the course of time for more than three thousand years, the water wheel, like all other motive machines, has been the subject of thousands of modifications. One of the most primitive structures for this purpose of which we have any knowledge was the flutter-wheel. Near akin to the flutter-wheel, we had the undershot-wheel, rather more pretentious in its fitting apron which held the water to its work, but which could not, however, prevent its too rapid escape from the blades, and was left to continue its downward course, yielding but about 35 per cent. of power.

With buckets curved with radius and inclination, for the water to strike them more favorably, and to be acted upon for a longer period, 55 per cent. was afterwards developed. Next the overshot and breast-wheel found approval,—indeed a few years ago it was difficult to find mills or factories driven with any other kind of wheels; but they are now losing ground very rapidly on account of their many objectionable features, of which we name the following:

1st. As the power of water is its weight, many persons believe that in using the overshot they utilize the full weight of the water. But it is a mistake, as will be readily seen. You lose, first, a head of water equal to half the head of the gate; second, the depth of the bucket on the wheel itself; third, the space below the wheel necessary to give a proper clearance to the discharge.

2d. Its efficiency is largely diminished by an unavoidable waste and loss of a part of the fall, by water leaving the buckets before the lowest level is reached.

3d. Another defect in the overshot appears when applying the power of the wheel to its work. Its slow motion requires a great amount of heavy and cumbrous gearing in getting up the required speed—which not only causes a great loss of power arising from so much friction, but makes it very expensive in its first cost, and attendant disadvantage of constant wear, and its liability to accident.

4th. The wheel travels in precisely the opposite direction from the current in the tail-race, and instead of its being free to pass away from the wheel at once, it is drawn under, causing the annoyance of "back-water."

5th. On account of their usually exposed position, the great liability of being loaded with ice in the winter.

6th. In most cases wood is employed in their construction; and owing to the constant alternation of wet and dry, cold and heat, sun and air, and from various other causes, are seriously thrown out of balance, rendered unfit for purposes requiring a steady and uniform motion, and consequently are short-lived and liable to many stoppages and repairs.

7th. Back-water either stops the overshot entirely or clogs it so it cannot be used to any advantage.

On the other hand, in the use of the turbine every inch of head and fall is utilized.

The turbine wheel wastes no water—all of it passing through the wheel.

The turbine having a very rapid motion (for instance, a wheel 21 inches in diameter under a 20 foot head giving over 22 horsepower, makes 259 revolutions per minute) requires very little gearing, and that of the simplest kind,—gaining the power lost by the heavy, cumbrous gearing of the overshot, and saving the heavy expense connected therewith.

The turbine wheel runs as well in the tail water, as it does above it.

The turbine is never frozen up, or affected by the frost in any way.

The turbine is never in the slightest degree affected by the "back-water," save in the loss of head and fall; which gives it a decided advantage over the overshot-wheel.

For example, with a 15½ foot overshot on a head and fall of 18 feet, it is usual to allow a head of water 2 feet above the overshot-wheel, and to prevent it from wading in the tail water it is necessary to allow a clearance of at least six inches, the wheel therefore for this fall cannot exceed 15½ feet diameter. The head above the overshot is generally regarded as wholly lost, but we will concede the benefit of one-half of the head. There will then remain to be deducted from the whole fall: 1st, one foot above the wheel; 2d, one foot for depth of rim, below which will be a line where the buckets are entirely empty; 3d, six inches clearance below the wheel, which makes together a loss of 2 feet 6 inches, and as the water begins to empty from the buckets not unfrequently nearly on a level with the shaft of the wheel, it will be safe to say that the waste from this source will be fully equivalent to the loss of another foot of fall, which makes a total loss of 3 feet 6 inches out of 18 feet, or about 20 per cent. of the whole fall.

Assuming, therefore, at this advanced stage in the history of the Turbine Wheel, that mill owners, manufacturers and all are now acknowledging its superiority, the question no longer is, "Shall I use a turbine?" but, "Which turbine shall I use?" Some wheel builders are claiming for their wheels 90 per cent. and over. It is absurd for them to claim more for their wheels than it is possible to attain. The power of water is fixed by the laws of gravity, and there is no machine—however effective—that can make it any greater. The whole theoretical power is represented by one hundred parts; the loss from friction of the water, from the inertia, the friction of the wheel itself, together with the loss from leakage, in practice is not less than fifteen hundredth of the whole power; this leaves us but 85 per cent. as the highest that can be expected under ordinary circumstances. It is obvious, therefore, that the proportion of effective power of the water which is brought to bear upon the wheel, depends

wholly upon the correctness of its construction, together with the fine workmanship and close joints. And when we consider the variety of Turbines now offered for sale, and the pertinacity with which their several claims to superiority are urged, we fully appreciate the perplexities which beset the purchaser in attempting to select the best wheel.

INVENTIONS AND SCIENTIFIC PROGRESS.

The nineteenth century is rich in scientific research. Scientific information is widely diffused, and scientific associations are rapidly increasing. Inventors quickly turn every discovery to profit. It is only five years since the first whisper of the telephone was heard, and now it is in common use.

American inventors are far ahead of all other nations, both in the number and the value of their inventions.

One cause of this is the Patent Law of 1790, which has, without question, done much to stimulate inventions. A patent can be obtained in this country for only thirty dollars. In England, it costs from \$800 to \$1,000. In fact, we may reasonably look upon our patent office as a public educator—for inventors are men of thought; the mechanics of America are essentially a reading, thinking people, studying problems of utility. Is it too much to say that the great reason for the difference in intelligence between American and European mechanics is that the former is spurred on to thought by the hope of a reward which the laws of Europe have placed beyond the power of her working men to attain?

A boot and shoe manufacturer in Switzerland not only purchased his machinery in Massachusetts, but was then compelled to send for American workmen. Both Russia and Australia send to America for locomotives.

Some are looking to China as the great manufacturing centre of the future; but they will doubtless find that a nation which has remained passive for 4,000 years will lack the vigor and push necessary to invent.

It is a curious fact that only among a free people can mechanical invention make progress. England was the freest nation of any during the last century, and she made the most progress. In this century, we have far outstripped her. France, not a whit behind England in education, made no inventions until after the French revolution and the establishment of a patent law in 1791. Germany gives the world patient, painstaking scientists and philosophers; but, in spite of her fine school system, no inventors, for her government is a military one. Austrians, Russians, Spaniards, etc., are none of them inventors.

During the next fifty years the advance in mechanical inventions will doubtless far exceed that of the last fifty years. As yet, we know very little of what may be called the "energy of nature."

Probably the next important application of it will be the perfecting of the electric light, so that it may be brought into daily use. To Professor Wheaton, of England, belongs the first honor of this discovery, as he experimented with it in 1840. In 1859, Professor Farmer, then resident in Salem, Massachusetts, now in the employ of the government at the Torpedo Station, Newport, lighted his room by electricity; but the cost of the zinc used in the galvanic battery rendered the light much more expensive than that of gas.

Professor Edison has now removed to New York City, where lighting by electricity is becoming fully tested under his careful supervision.

It has already been demonstrated that an electric light can be produced which will be equal to 1,000 feet of gas, costing \$2.50, at an expense of only 50 cents. Added to the powerful motive of economy is the fact that the electric light is steady, does not flicker, does not heat or vitiate the atmosphere, has no odor, can be instantly lighted without the use of matches, and is of superior brilliancy.

Not only will this light be used in the cities, but small manufacturing towns, with water power, can also be benefitted, by the simple erection of a water wheel and generator; so that Lowell, Manchester and Lawrence may yet be lighted by water from the Merrimac river.

Electricity will also doubtless provide us with elevators; thus doing away with the going up and down stairs that is so destructive to health and life in a city, and placing what is now the convenience only of hotels and large buildings, in every private house.

And this same powerful agent also holds before us in the future another bright promise. The open wood fire has given place to the close stove, dry furnace heat, or ill-regulated

steam; but we may hope in the near future to have our houses warmed by electricity; then gas, now expensive, as it can only be produced from the best quality of coal, (in fact, only 6 per cent. is used, the remaining 94 per cent. being wasted,) may be manufactured for cooking purposes out of the poorer quality, and ornamental heating fixtures may be found in parlor, bed-room and kitchen which will not fill a room with dust, nor vitiate the atmosphere, as the gas will be burned in a closed radiator, the fumes escaping up the chimney.

Baltimore, even now, produces such a fuel gas, at a cost of not more than fifty cents per thousand feet.

Science has lately turned her attention to what men call "important methods of warfare." The plates of iron gun-boats have been thickened to resist cannon balls; but they, in their turn, have received attention, and it is now conceded that no iron-clad can be built that will withstand the ball sent forth from a Krupp cannon. If a war should break out between England and America, a ship might be stationed seven miles from Boston, and yet toss her shot and shell fairly into the city.

The torpedo boat, with dynamite for ammunition, can speed through the water at the rate of half a mile in sixty seconds. What, then, is the future outlook for effectual warfare that will test the strength of nations? We may thank science and invention that they are forcing nations to settle their difficulties in some other way than by the life blood of their people.

Every German and Frenchman is compelled to spend some of the best years of his life in the army; and the cost of standing armies is an immense drain upon the finances of any nation. Europe keeps 2,000,000 men in the field at a cost of \$1,000,000,000 per annum. In this respect the United States is doing well. Her population nearly equals that of any country in Europe, and her area is vastly greater; yet her army and her navy are insignificant when compared with those of other nations; thus her people are at fullest liberty to devote their energies to progress and development.

There are 55,000,000 souls in America to-day. Ten years hence the number will be 70,000,000. At the close of the century, 90,000,000. What will it be 100 years hence? What, 1,000 years?

The new civilization, while developing the forces of nature, recognizes as no past age has done, the truth that life is more than meat, and the body than raiment."

In no other age has man, as an intellectual and moral being, been held at so high a value as at the present time.

It is this recognition of the worth of human beings that arches all the future with hope and light, men are no longer mere food for powder, the many created to do the bidding of the few. The new civilization recognizes not only the right of every man to make the most of himself, but regards it as the duty of Society to aid him.

Amid the smoke and flame of Gettysburg, America announced to the wondering nations that henceforth we were to be, not a confederacy, but a nation, one and indivisible; that men, irrespective of lineage, race, or previous condition, through all coming time, were to have all the rights and opportunities of citizenship.

Our growth in wealth is fabulous. Our first savings bank was established in 1816. In 1830, about \$6,000,000 were on deposit; In 1880 \$1,000,000,000.

Contemplate our railroads, manufactories, mines and cities. We stand amazed. The world has never witnessed such a spectacle. Men start in life without a dollar, and in fifty years have millions.

But, you say, "Rich men are growing richer; the poor poorer. It is true that the rich are growing richer, but it is not true that the poor are growing poorer. The poor man keeps step with the rich in the enjoyment of our numberless improvements. His house, his dress, food, newspapers, library, lectures, etc., etc., are the great blessings of life, and he enjoys them in common with the rich man. The poor man of to-day is vastly better off than the poor man of fifty years ago.

The Irish ride to the cemetery, when one of their number dies, in coaches far more luxurious than the best at the demand of England's great queen, Elizabeth.

At the beginning of this century there was probably not a bed in the world as comfortable as may now be purchased by two days' wages of a hod-carrier. Carpenters and blacksmiths can spread their tables with luxuries

which it was not possible for Queen Victoria to obtain when she ascended the throne. The fruits of all climes are to be found in our markets.

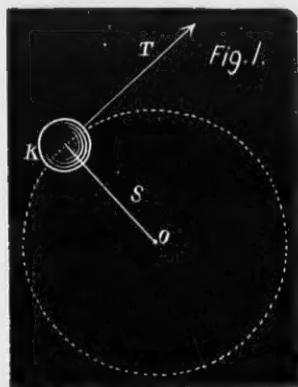
The new civilization has changed the world's estimate of men. In olden times kings and conquerors were idols; but to-day we forget kings and lords, while the names of Stephenson, Fulton and Morse awaken more enthusiasm.

The use of coal began a great revolution. One hundred years ago, Great Britain consumed 6,000,000 tons in a year; now, 140,000,000 tons. It is the energy in the 200,000,000 tons of coal used in the world every year that gives motion to the world's machinery. In 1788, Great Britain manufactured 68,000 tons of iron; in 1880, 7,000,000 tons. In 1851, Great Britain's product of steel was 61,000 tons; twenty-seven years later, 1,000,000 tons. Inconceivably vast areas of coal are still untouched. Europe has 3,500 square miles of it; Great Britain 5,400; North America 100,000 square miles. At the present rate of consumption, England will use up her coal in 1,000 years, and America will exhaust hers in some millions of years.—*Dio Lewis' Monthly*.

[Translated for the UNITED STATES MILLER, from Prof. Kick's Treatise on Milling.]

SOME RECENT CHANGES IN CENTRIFUGAL BOLTING OR SIFTING MACHINES.

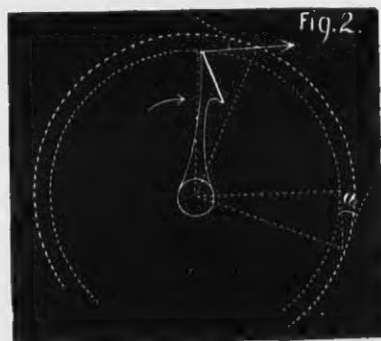
Several changes have been introduced of late in centrifugal sifting machines, consisting of a new form of the wings and a peculiar arrangement of the bolting-cloth, and the combination of two and even more bolting cylinders in one machine for separating purposes.



The changes in the form of the wings are supposed to cause a more radical direction of the grist particles, when thrown against the bolting cylinder, the principal difficulty with these machines being the enormous consumption of cloth, the reason of which is to be found principally in the fact that the grist is thrown against the sifting surface in a very acute angle.

Several German millers have, for practical reasons—the great loss of power and bolting-cloth used, taken a stand against the centrifugal bolting machines, and declared that this defect rests in their principle and is consequently incurable. The so-called improvements themselves in the shape of the wings, show clearly that the trouble really lies in the principle and consists in the throwing of the grist obliquely on the sieves.

When a body B. (Fig. 1,) attached to a string *s*, is moved in a circle, it is true that it causes a radial tension on the string, which is called centrifugal force; but the moment the

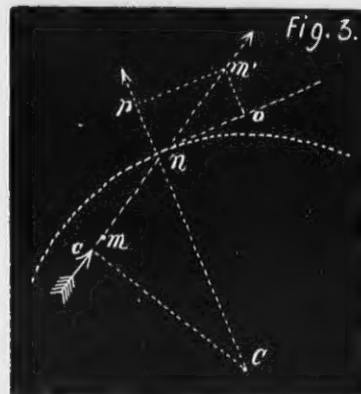


string is held in *o*, the body flies away in the direction of the tangent. The new motion can only take place in the same direction, in which the body moved at the moment when the retaining force was released. The tension of the string or the centrifugal force compels the body to move in a circle; if this force is removed, it will keep on in the direction which it had when the restraint was taken away, and that direction is *always* the tangent *T* at the point where the body was turned loose. Any one can easily satisfy himself of the truth of this law by observing the behavior of the stone in a sling, where the shoulder represents the point *o*.

In the centrifugal bolting machine, therefore, the grist particles fly against the sieve in the direction of a tangent to the circle described by the wings, (see Fig. 2) and this

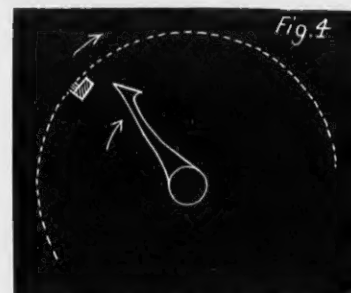
oblique direction, represented by the angle *a*, which by no alteration whatsoever of the wings can be changed to a normal direction, is the fundamental defect in the centrifugal bolting machines so far brought forward. No matter how variable, therefore, the form of the wings may be, they may all be passed over, since it is *physically impossible* that the defect can be remedied in this way.

Nevertheless the question arises, whether there may not be found a means by which the grist could be thrown perpendicularly against a rotating sifting-surface. Suppose a grist particle is driven against the sifting-surface in the direction *m n* (see Fig. 3) with the velocity *m n*, while the sieve itself moves with the velocity *n o*, the result will be the same, as if the grist particles were flying against the sieve with the velocity *n p* in the direction *n p*. This is evident from the following reasoning, it being presumed that the



reader is acquainted with the physical axiom that velocity can be dissolved and compounded in the same manner as forces, and that consequently we may speak of parallelograms of velocity just as well as of parallelograms of forces. If the velocity *m n* = *n m'* be resolved into the velocities *n o* and *n p*, it will be seen that the compound part *n o* of the velocity contained in the grist particle produces no effect whatever, as long as *n* (the sieve) also moves with the velocity *n o*. Relatively speaking, there remains only the velocity *n p*, as shown above. If, therefore, there were no other factors to be taken into consideration, to which we shall soon refer, it would be an easy matter to remedy the defect of the centrifugal bolting-machine, by letting the cylindrical sieve revolve in the same direction as the wings with nearly the same velocity.

If *C c* is the radius of the circle described by the wings and *C n* of the sifting-cylinder,



it follows, from the similarity of the triangles *n m' o* and *n o C*, that *n o* : *n m'* = *C c* : *C n* or

$$n o = \frac{n m' \times C c}{C n}$$

by which the velocity of the sifting-cylinder is determined for the purpose of making the grist particles strike the sifting surface perpendicularly. If we employ the numerical value of the rotation and let *x* signify the revolutions of the wings and *y* the revolutions of the sifting-cylinder, we get

$$y = \left(\frac{C c}{C n} \right)^2 x$$

When *x* = 200 and $\frac{C c}{C n} = \frac{30}{32} = \frac{15}{16}$ is *y* = 175

In these calculations we assume that the air, which takes part in the circular motion exerts no perceptible retarding influence, a supposition that must come very near the truth, since the sifting-cylinder is also rapidly revolved. It may also be mentioned that the process shows the proportion *C c* : *C n* to have a very marked influence on the result.

Nevertheless if a bolter were made on this principle, it would not sift at all in a very short time, since all the grist particles falling on the sieve without passing through immediately, would at once take part in the rotating motion of the cylinder, and, pressed against the surface of the sieve by the centrifugal force, soon clog the same by means of mutual adhesion. This principle could therefore only be brought into practical use, if the difficulty just mentioned could be removed. In all probability this might be done by arranging on the inner surface of the sifting-cylinder a brush, made not of bristles, but of softer hair, (see Fig. 4). The constructive difficulties as regards its fastening and adjustability could be easily overcome.

Before finishing this subject, we can from the equation

$$y = \left(\frac{C c}{C n} \right)^2 x$$

answer the question what proportion the radii of the wings and of the cylinder should have to each other with the usual velocity, in order to insure a perpendicular flight of the grist particles. We find that

$$\frac{C n}{C c} = \sqrt{\frac{x}{y}} = \sqrt{\frac{200}{175}} = \sqrt{\frac{8}{7}} = 2.8,$$

that is, the radius of the wings must only be a little over a third part of the cylinder radius, which would give an altogether too large open space for the grist particles to fly through.

A second alternative to make the direction of the grist particles more favorable, is found in giving up the complete cylinder form of the sieve, of which Mr. H. Seck, in Frankfort-on-the-Main; has made use, is his cylinder, lately patented.

He makes the frame of his cylinder of iron pipes, four of which are somewhat larger and provided with tacks, on which the silk-gauze is fastened and carried from there over and around the other pipes in the form of steps, along the inner surface. His arrangement makes the angle in which the grist is thrown against the sieve less acute and consequently better; but the angle remains, however, anything but favorable.

In regard to the combination of two or three centrifugal bolters into one machine, partly for the purpose of sorting the milling products, partly for the separation of the coarser particles and less wear of the gauze, we will only say that such arrangements, on account of the saving of space effected, may be suitable for small mills, but for mills of large capacity these combined machines require so much sifting surface, that they have proved to be impractical for such use.

A CAUSE OF BOILER EXPLOSIONS.

According to M. Treves, some occasionally mysterious explosions of steam boilers, when apparently in good structural and working order, may be thus explained: Supposing that work is to be suspended either for the night or for any long interval, after a stated hour, and that a boiler is commonly driven under an average pressure of 80 or 90 pounds of steam; some time before the hour of closing, the stoker lets his fire slacken, fills up the boiler, and leaves off with perhaps 50 or 60 pounds on the gauge. Next morning, or after the interval, he finds the pressure gauge standing at 20 or 30 pounds, with a good supply of water. Consequently, in order to save the heat stored in the boiler, he begins to fire up, without thinking of the danger which may lurk in the water that has been boiling all night. The stoker never thinks of putting in more water, because the gauge is all right, and thus prepares the essential preliminaries of a "mysterious" explosion.

The water that has been standing above the boiling point for hours has lost its power of ebullition, because the air which it formerly contained has long been driven off; and in this dead condition it is capable of absorbing heat without the power of delivering it up in the form of steam. The water thus becomes superheated, and at the moment of any mechanical agitation—such as the opening of the steam valve, or the introduction of fresh water—it may instantaneously flash into steam with explosive force. It has been abundantly proved that, apart from gross defects of construction, condition or management, superheating of the water has of late years been the only intelligible cause of the greater number of boiler explosions. The remedy for this danger is fortunately simple, and resides in the employment of any effective means for preventing the "sleep" of water in boilers by keeping up a constant ebullition.

A good device for this purpose is to prolong the water feed pipe by a *T*; the horizontal branch being about six inches above the bottom of the boiler. The under part of this tube is to be provided with open conical nipples ranged along the whole length of the pipe, which will extend from end to end of the boiler. Before firing up, the stoker should force air through the feed pipe so fitted until a pressure gauge on the pump shows a higher reading than the quiescent steam gauge. The nipples are then full of air, and ready to act as generating centers of ebullition, whereupon the fire may be pushed as briskly as desired without risk of explosion. This suggestion emanates from M. Donny and Gerné, and is recommended by M. Treves as an economical embodiment of a universally accepted theory.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

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[Entered at the Post Office at Milwaukee, Wis., as second class matter.]

MILWAUKEE, OCTOBER, 1883

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. You will thereby oblige not only this paper, but the advertisers.

Flour Mill Directory.

CAWKER'S AMERICAN FLOUR MILL DIRECTORY shows that there are in the United States 21,356 flour mills and in the Dominion of Canada 1,488. The mills in the United States are distributed as follows:

Alabama, 388; Arizona, 17; Arkansas, 234; California, 209; Colorado, 52; Connecticut, 309; Dakota, 44; Delaware, 96; District of Columbia, 7; Florida, 81; Georgia, 514; Idaho, 13; Illinois, 1258; Indiana, 1163; Indian Territory, 3; Iowa, 872; Kansas, 437; Kentucky, 642; Louisiana, 41; Maine, 220; Maryland, 349; Massachusetts, 363; Michigan, 831; Minnesota, 472; Mississippi, 297; Missouri, 942; Montana, 20; Nebraska, 205; Nevada, 10; New Hampshire, 202; New Jersey, 445; New Mexico, 28; New York, 1942; North Carolina, 556; Ohio, 1462; Oregon, 129; Pennsylvania, 2786; Rhode Island, 47; South Carolina, 205; Tennessee, 620; Texas, 548; Utah, 129; Vermont, 231; Virginia, 689; Washington Territory, 45; West Virginia, 404; Wisconsin, 780; Wyoming, 3; Total, 21,356.

The directory is printed from new Burgeois type on heavy tinted paper and is substantially bound. It makes a book of 200 large pages. The post offices are alphabetically arranged in each state, territory or province. The name of the mill, the kind of power used and the capacity of barrels of flour per day of 24 hours are given wherever obtained which is in thousands of instances. This work is indispensable to all business men desiring to reach the American Milling Trade.

Price Ten Dollars per copy, on receipt of which it will be sent post paid to any address. Remit by registered letter, post-office money order or draft on Chicago or New York made payable to the order of E. Harrison Cawker, publisher of THE UNITED STATES MILLER, Milwaukee, Wis.

1884.

FLOUR MILL DIRECTORY.

We are now hard at work preparing CAWKER'S AMERICAN FLOUR MILL AND MILL FURNISHERS' DIRECTORY of the United States and Canada for publication and expect to have it ready for delivery on or about January 1, 1884. Flour mill owners can very materially assist us and make this work of greater value to the trade by writing to us and giving the correct name and style of their firm, with post-office address, and also the capacity of their mill in barrels per day of 24 hours, and also the kind of power used—whether water or steam. We shall spare no pains to make this directory better and more complete than any former edition. Our 1882 edition met with great praise from all who used it, and we think our 1884 edition will give still greater satisfaction. It is to the interest of every mill-owner to be correctly represented in this work. It will cost you nothing but a few moments writing and the price of a stamp, which now is only two cents. The directory is used by mill-furnishers, commission merchants, flour exporters and importers, dealers in machinery and supplies, and by millers, shipping agents, insurance agents, etc., as a work of reference. It has been found to be indispensable to the transaction of business in the trade.

Address all communications to

E. HARRISON CAWKER,

Nos. 116 & 118 Grand Ave.,
Milwaukee, Wis.

FLOUR MILL OWNERS—Please send us your address, with capacity of your mill in barrels per day of 24 hours, and also state whether you use steam or water-power, or both.

MINNEAPOLIS Millers are troubled considerably by the insufficiency of the water supply, and for that reason, as well as others, are only running to a limited extent of their capacity. It is, we believe, only a question of time, when all Minneapolis mills will be supplied with steam engines for use when the water is low. Minneapolis mills are now reported to be

running to only about one-third of their capacity.

Buffalo, N. Y., flouring mills have a daily capacity of 3,975 barrels.

DURING the month of August 38,388 immigrants arrived in the United States.

TO-DAY (Oct. 1,) there are 1,215,000 bushels of wheat in store in Milwaukee elevators.

OREGON and Washington Territory wheat to a limited extent will soon be in Milwaukee and Minneapolis markets.

THE U. S. Agricultural department places the corn crop of the United States for 1883 already safe at 1,500,000,000 bushels.

THE Canada wheat crop for 1883 is reported very light and Canadian millers are trying to get the import duty on wheat reduced.

CHICAGO and Milwaukee have already received 5,279,333 bushels of wheat of 1883 crop, against 6,590,000 bushels, up to Oct. 1, 1882.

Charles Rugel, the Parisian statistician says that, taking one year with another, France and England require all the surplus wheat of the United States and Russia.

FLOUR MILL OWNERS—Please send us your address, with capacity of your mill in barrels per day of 24 hours, and also state whether you use steam or water-power, or both.

MINNEAPOLIS exported 1,750,750 barrels of flour during the year ending August 31, 1883, the total flour shipments from Minneapolis, during that time are reported to be 4,089,908 barrels.

THE Knickerbocker Manufacturing Co., of Jackson, Mich., are reported to be hurrying on the completion of their mill-furnishing establishment at Jackson, Mich., as rapidly as possible.

THE firm of Holcomb & Heine of Silver Creek, N. Y., extensive manufacturers of centrifugal reels and bolting cloth, has been dissolved by mutual consent. August Heine will continue the business, which is a large and prosperous one.

We acknowledge the receipt of "The Paper Mill Directory of the World," by Clark, Bryan & Co., Holyoke, Mass. It contains the names and addresses, with capacity, of 4,463 paper mills in the world. It is valuable to all dealers in paper and manufacturers of machinery used in paper mills.

FLOUR MILL OWNERS—Please send us your address, with capacity of your mill in barrels per day of 24 hours, and also state whether you use steam or water-power, or both.

We acknowledge with pleasure the receipt from the John T. Noye Manufacturing Co., of Buffalo, N. Y., of one of the handsomest and most appropriate paper-weights that it was ever our fortune to own. It is a nickel-plated little model roller-mill, showing to perfection the Stevens' corrugation. It bears the inscription in handsome letters: "Stevens roller mills, manufactured only by the John T. Noye Manufacturing Co., Buffalo, N. Y." We tender our most sincere thanks to the Company for this handsome little souvenir.

NOTHING of importance has yet been developed in the matter of the Buchholz roller-mill patents, which claim to be "bed-rock" patents. Mr. Buchholz is a very pleasant gentleman, and doubtless a clever inventor, and if he had presented his claims some years sooner he might, perhaps, have shown a good case, but then a few years ago, when his patents may have been valid in this country, there were few or no roller-mills in America. We have heard indirectly that Mr. Buchholz has again sailed for Europe, but cannot vouch for the truth of the rumor.

THE Milwaukee Exposition is drawing immense throngs of visitors from all sections of the North-west, and all express themselves pleased with the magnificent building and the endless display of goods of all descriptions, machinery of many kinds in operation, the museum of curiosities and the gallery of rare paintings and engravings. It requires at least two days to see the Exposition. Aside from all display the managers provide the choicest music from the "big organ" and from the best brass bands that can be obtained. The N. Y. Seventh Regiment Band is now performing

every afternoon and evening to delighted audiences. Every man, woman and child in the Northwest should visit the Exposition.

FLOUR MILL OWNERS—Please send us your address, with capacity of your mill in barrels per day of 24 hours, and also state whether you use steam or water-power, or both.

THE Minneapolis Millers' Association and the railroads running into Minneapolis are having a little fight. The millers demand lower rates for the transit of wheat from south and south-west points. The railroads refuse to comply with the demands of the millers. The Association of millers threaten that they will not send out money to buy wheat on the lines of road refusing to accept their terms, and the railroads in turn threaten to buy up the wheat and ship it to Milwaukee and Chicago. So the matter stands at present.

THE Secretary of the Illinois State Board of Agriculture reports concerning the crops of Illinois as follows:

The wheat crop of 1883, of 20,347,592 bushels, is the smallest on record during the past twenty-four seasons. The average yield of ten bushels per acre is less than that of any year on record, with the exception of 1876 and 1881. The price of wheat in first hands of 95 cents per bushel immediately after harvest, has not been higher than this season but twice in ten years—1877, \$1 15, 1881, \$1 07 per bushel. The value of the late crop of wheat, of \$19,337,063, is less than that of any year since 1881. The loss on the 1883 wheat crop, after deducting use of land, cost of production, etc., is \$3,358,749. The spring wheat crop amounts to 615,190 bushels, the winter wheat crop, 19,732,402, a total of 20,347,592.

WE have received a handsome copy of *Trade, Commerce and Industries of Chicago*, by John E. Land, Esq., of No. 76, Fifth Avenue, Chicago, Ill. Mr. Land has been for many years engaged in publishing the commercial histories of various cities in the United States, among which, we remember those of Milwaukee, Minneapolis, St. Paul, Peoria, Pittsburgh, etc. The plan of the work is to give a general history of the city, with handsome illustrations, and then the author points out the peculiar advantages of the place for business purposes. This is followed up by graphic, illustrated descriptions of the leading business houses. The Chicago work is very large and handsome, and shows the result of an immense amount of careful labor.

A Rochester, N. Y. correspondent writes as follows:

The milling interests in Rochester complain of the condition of the trade and margins this year as compared with the season of 1882. The latter was very satisfactory, the main reason given being that while the wheat crop of 1882 in New York State was exceptionally fine, both in quality and quantity, so much so in fact, that it commanded a premium of from 12 to 15c. a bushel over western wheat, millers were obliged, in order to find a market for their product, to sell at the same figures demanded for western flour, and consequently with little or no margin and to their loss. This year's wheat crop in New York State is not only very poor in quality, but only about half as large as last year's which will necessitate the use of western wheat largely by Rochester millers, yet still giving them a fair chance in competition with western manufacturers in eastern markets. The combined capacity of the Rochester mills is 3,100 barrels daily, and at present they are running at only about two-thirds their actual capacity.

CONSUL Henry Sterne, at Buda-Pesth, Austria, in noticing the fact that the export of flour from the United States is year by year assuming larger proportions, properly inferred that the milling interests in the United States would be interested to know that the production of the Hungarian millers last year was the largest on record, that the mills there all paid good dividends, and that the outlook June 14, (date of Mr. Sterne's report,) was that 1883 would also prove a profitable year.

The following is a statistical report by the Chamber of Commerce on the quantity of flour produced by the eleven mills of Buda-Pesth during the years indicated:

	Cwt.		Cwt.
1870.....	5,900,000	1874.....	4,500,000
1871.....	5,700,000	1880.....	6,270,000
1872.....	4,000,000	1881.....	6,800,000
1873.....	4,850,000	1882.....	8,000,000

The years from 1874-80 are not reported, but the product in said years is said to have gradually increased again.

These mills consumed 13,700,000, 15,230,000, and 17,700,000 bushels of various kinds of grain during the years 1880, 1881 and 1882 respectively. There are other large mills scattered over the State, but those of Buda-Pesth are mentioned because they are more exclusively working for the export trade, and are, therefore, of more direct importance to competitors in the United States. The Austrian milling industry is specially favored by

the State in the matter of transportation charges. Nearly all the flour exported goes out of the country by way of Fiume, at the head of the Adriatic. It is added that about 25 per cent. of the total product is exported. England takes the largest share, and of the finer grades, after which, in the order named, Hungary's customers for flour are France, Germany, Switzerland, Belgium, Holland and Brazil.

FLOUR MILL OWNERS—Please send us your address, with capacity of your mill in barrels per day of 24 hours, and also state whether you use steam or water-power, or both.

DIRT BY THE BUSHEL.

We watched the unloading of a boat-load of wheat not long since, at a mill by the Erie canal. The huge elevator leg was let down into the hold of the boat, and the great mill began to suck up the cargo at a tremendous speed. We could not help thinking of the way a spider sucks the life of a victim, and we almost looked for the boat to shrink into a shapeless lump, as the huge bulk of wheat was rapidly transferred to the bins of the mill.

But ere long we were fairly driven from our point of observation at the hatchway by the blinding, suffocating clouds of dust that rose from the depths of the hold. And as we examined the wheat we began to wonder who had been paying for the transportation of all that dirt. Of course a thorough cleaning of the wheat would reduce the bulk of the cargo, and that too, quite materially. Some one must pay for the carrying of all this dirt—pay for it by the bushel. And the grain shovellers, down in the hold could add their voices to ours in objecting to this uneconomical way of shipping wheat. Their pulmonary complaints are increased by every load of grain they assist in discharging. So that health and economy would dictate a different course from that now pursued in the shipment of wheat to the mill.—Roller Mill.

LITTELL'S LIVING AGE.—The numbers of the *Living Age* for September 15 and 22, contain France and England in Egypt, and France in Syria, *Fortnightly*; The Locust War in Cyprus, *Nineteenth Century*; Across the Plains, *Longman's*; King Mtesa and the Belka Arabs, *Blackwood*; Two Turkish Islands To-day, *Macmillan*; Morocco, or a Few Days among the Indians, *Month*; Earth Pulsations and Winter Life at Fort Rae, *Nature*; Unclaimed Money and the Southampton Artesian Well, *Chamber's Journal*; The Pathetic Element in Literature, *The Closing of the Scottish Highlands*, and a Summer Day's Journey, *Spectator*; with "Master Tommy's Experiment" "Town Mouse and Country Mouse," and installments of "Along the Silver Streak," and poetry.

For fifty-two numbers of 64 large pages each, for more than 3,800 pages a year) the subscription price (\$8) is low; while for \$10.50 the publishers offer to send any one of the American \$1 monthlies or weeklies with *The Living Age* for a year, both post-paid. Littell & Co., Boston, are the publishers.

PER CAPITA CONSUMPTION OF WHEAT.

The increased consumption of wheat per capita, both in Europe and America of late years, is a well established fact. In the former, even in those districts where rye is mostly used, there has been a notable increase in the use of wheaten bread, as the relative price of the three principal classes of foods, meat, bread and vegetables, are about the same in both countries. This fact shows that wheaten bread, with its nutritious value, is the most economical article of diet in general use. In the Southern states, among the colored people, the consumption of corn has been of late largely displaced by the use of wheat. The per capita consumption of wheat in the United States has been recently estimated at four bushels per annum. The *New York Produce Reporter* considers this to be considerable below the real amount, and presents carefully collected statistics to prove the statement. Taking the estimate of the Agricultural Department of the average wheat acreage during the five years from 1877 to 1881 inclusive, and allow 1½ bushel per acre for seed, which is ½ of a bushel larger than the estimate of the Department, and adding the average annual exports of the five years ending June 30, 1882, subtracting from this sum the average annual imports, there remains 197,722,811 bushels as the average annual absorption of our crop in seed and net exports, leaving an annual average consumption of 294,658,990 bushels. On the basis of the average population, as taken from the census of 1870 compared with that of 1880, which is 48,737,499, the annual average quantity of wheat retained for consumption is found to be 4.61 bushels for each inhabitant, or with the Department's estimate for seed, it would be 4.70 bushels. As the reserves at the close of the above period were probably less than at any corresponding date for the past twenty years, the writer concludes that five bushels per capita is probably nearer the true amount of the wheat consumption.—American Miller.

THE SAVANNA FLOURING MILLS.

CAPT. JERRY WOOD, PROP.

In the manufacture of no one article has there been such a complete revolution in the past ten years, as in the manufacture of wheat flour. The use of the pick in the dressing of stones for the manufacture of wheat flour, has been entirely done away, and a mode of manufacture adopted that proves to be far more satisfactory to the owners of mills and to the consumers of their products. The making of flour by what is known as the "Roller Process," is a decided improvement, and the the "mill-stones" in use for these many years, are rapidly being displaced and will soon be referred to, only as we speak of the manner of the manufacture of articles in the "past ages."

The Savanna Mill is situated on Plum River about one and a half miles from the post-office, and the site is of the most natural and best for a water-power mill to be found in any portion of the Northwest. There is an abundant supply of water at all seasons of the year, and every natural facility is afforded for carrying on the business with profit to the proprietor. For some years the flour manufactured at the Savanna Mill has been considered the equal of any flour to be found in the home market. Capt. Wood, the proprietor, is one of those far-seeing, practical business men, who is at all times determined to keep abreast of the times in any department of business under his management. As soon as it was established that a process for the manufacture of flour had been discovered that is superior to the process that was used in his mill, he determined to have it, and thereby give to his patrons the benefits of the advantages of purchasing an article of flour of home manufacture that is the equal of the best made at any place in the whole country. He at once made a thorough investigation of the different manufactories, of the machinery necessary to the 'new process,' and decided that Edward P. Allis & Co., of Milwaukee, Wis., are the most trustworthy and competent men engaged in the business. In the month of May he closed a contract with them, and a complete revolution of his mill was commenced. Not a dollar of expense has been spared in making the Savanna Mill second to no mill in the State. The most competent workmen have been employed and everything done to make a superior mill. The instruction of Capt. Wood to the agents of Messrs. Edward P. Allis & Co., to our personal knowledge, was to spend the last dollar necessary to make the Savanna Mill the best that could be made. The expenses of making the change was \$10,000, and after having looked through the mill, from the basement to the fourth story, we are gratified to state that in our opinion, those in charge of the revolution faithfully carried out the instructions of the proprietor.

It is a pleasant thing, indeed, to see perfect working of the machinery. Surely it can be said that everything works to a charm.

We were shown through the mill by Mr. J. E. Watson, agent of E. P. Allis & Co., who is a practical miller of twenty-three years experience, and who very kindly detailed every step in the process of making flour by the "roller method." We have reason for thinking that Mr. Watson thoroughly understands his business and is a trustworthy and reliable man. Without solicitation he said to us that Capt. Wood has the most complete and perfect mill of its capacity, to be found in the State. He has a large acquaintance with the mills of the State and said that he was well advised of what he was saying. There are five reductions on wheat, and seven on middlings. Mr. Watson assures us that if Capt. Wood cannot manufacture a superior article of flour, that it will prove futile for any one to try.

Jerry Greve and John Crawford, Capt. Wood's millers, are men of long and faithful experience, and are well skilled in the business. They are delighted with the perfect running machinery and are confident that the flour of the Savanna Mill will stand the test of the most fastidious inspector.

The capacity of the mill is sixty barrels per day, when worked with ordinary speed.

In closing, we are pleased to state that no man has proven his confidence in the future prosperity of the town of Savanna, more fully than has Capt. Jerry Wood. Fortunately for the town, he has money and is not afraid to invest it.

He shows in the most practical way possible, that he is interested in building up the permanent institutions of the town. We would that others who have means and are only willing to invest in a bond and mortgage,

were possessed of a portion of the enterprising spirit of the proprietor of the Savanna Mill. There are other manufactories that would thrive in this vicinity if only those having the means would be willing to invest it. Let us hope that it will be done in time. —Savanna (Ill.) Times, September 14, 1883.

ELEVATOR CAPACITY TRIBUTARY TO MINNEAPOLIS.

The larger proportion of the elevators along the St. Paul, Minneapolis & Manitoba, and the Northern Pacific Railroads are owned and controlled by the millers of Minneapolis, Minn. The following are the names of the elevator companies, and the aggregate capacity of their elevators, from which mainly that city obtains its supplies of wheat, as stated by the Pioneer Press: The Geo. W. Van Deusen Co. have 70 elevators with a capacity of 1,750,000 bushels. The largest at Minneapolis has a capacity of 300,000; the next in size at Winona with 200,000, and the third at Rochester with a capacity of 100,000 bushels. All are in Minnesota except two, which are in Dakota. The Northwestern Elevator Co. has 18 elevators with a total capacity of 1,450,000 bushels. Hodges & Hyde have 38 elevators, aggregating a capacity of 575,000 bushels. The Pillsbury & Hulbert Elevator Co. have 62 elevators with an aggregate capacity of 3,064,000 bushels. The two largest are at Fargo and Three Points, on Moorhead Northern, with a capacity of 120,000 bushels each. W. W. Cargill & Bros., have 36 elevators with a total capacity of 610,000 bushels. The Minnesota & Dakota Elevator Co. have 23 houses located on the St. P., M. & M. Railroad, with an aggregate capacity of 1,035,000 bushels. The Northern Pacific Elevator Co., has 45 elevators with a total capacity of 2,009,000 bushels. The two largest are at Fargo and Mapleton, Dak., with a capacity respectively of 150,000 and 100,000 bushels. Kellogg, Lange & Miller have 24 elevators with a total capacity of 921,000 bushels. The two largest are at Sioux River Valley and Elevator "C," at Minneapolis, with capacity of 150,000 bushels each. F. H. Peavey & Co. have over 50 elevators, and seven new houses going up in Dakota, with an aggregate capacity of 911,000 bushels. Meader & Co. have 10 elevators, on the Pacific division of M. & St. L. Road, owned and operated by several parties, aggregating a capacity of 310,000 bushels. The Minnetonka Mill Co. have 6 elevators with a total capacity of 97,500 bushels. The St. Paul elevators are "A" and "B" with a capacity respectively of 500,000 and 1,000,000 bushels. The Milwaukee elevator is not in use. The Minneapolis elevators, not included in the above, are "A," "B," Pillsbury, Lowry, and the Mills, with an aggregate capacity of 3,095,000 bushels. The largest, elevator "B," has a capacity of 900,000 and the next in size, elevator "A," of 750,000 bushels. Under the head of Sundry Firms, and all other elevators, is aggregated a capacity of 3,740,000 bushels. The grand total elevator capacity is 20,394,500 bushels.—American Elevator.

PERPETUAL MOTION.

The Professor in the Machine Shop.

As I stated in the last issue, Bill was so disappointed to see the machine stop when he thought that he had it perfected at last, that he was about to smash it with a heavy sledge; but just as he was going to strike I stopped him. I did it from the instinct of a machinist. I could not bear to see all that fine work smashed up. The mere fact of its being worthless in itself had nothing to do with it. Somehow a mechanic winces when the work of his hands or of others is deliberately broken up before him, and I stayed Bill's hand, with some indefinite idea that perhaps a part of the machine might be good for something; a nonsensical notion enough; but impulse is not reason.

So soon as the fit passed away from Bill, he went and seated himself in a corner and leaned his head against the wall in silence. I let him alone and said nothing, for, to tell the truth, I did not know what to say. If I consoled him, it might encourage him to go on with his efforts, when I came there with the intention of discouraging him.

"When in doubt, do nothing," is a good motto, and I followed it. In a little while he got up and came over to the machine.

"Something must have got foul somewhere," said he, "for if it will run three days it will run thirty years. Take a look at her, Moulton, and see if you can find anything wrong."

"Bill," said I, "you must excuse me. I don't know anything about it, what your principle is, or where the machine begins or ends. I'd do more harm than good."

But before I had done speaking Bill had the lamp in his hand and was peering in among the gears and the toggle-joints, and the lazy-tongs, and every sort of mechanical movement that was ever heard of. He reached in his hand, drew his finger over the teeth of the escapement, and looked at it.

"She's dry as a bone," said Bill. "No wonder she stopped. Those pallets are hardened steel, and they ought to be made of something harder. I'll send to New York, and get some irridium, the metal they point gold pens with, and try that to-morrow. Once I get that all right she will run then, and no mistake. I ain't going to give her up now when I have got as far as this."

"Bill," said I, "are you going to work on this machine any longer?"

"Didn't you hear what I said?" he answered. "Of course I am."

"Well, now, let me tell you something," said I. "Suppose your escapement is dry; don't you see that a machine which weighs a ton, and which is supposed to have power within itself to drive itself, must be pretty nearly balanced as regards running or stopping when a little thing like that can defeat it? You are too good of a mechanic not to see that, Bill."

He thought for a moment, and said slowly: "I don't know but you are right."

"And no matter what rigs you get up," said I, continuing, "you come out at the same place you started in at."

"What's that?" said he.

"Why, your machine stands still," said I. "You may annihilate friction—almost—and balance your moving parts until a breath will start or stop them; but, Bill, the more you put in, the worse you are off. Every piece you put on that machine since you began it was a mistake; for the matter of that, the whole of it is, and I want you to promise me one thing right now—that you will drop this job at once and never do another stroke on it."

He sat moody and silent, his legs stretched out in front of him, his chin sunk on his breast, and his eyes gleaming underneath his shaggy brows. I continued to exhort him, laying down the law, explaining why the machine could not work, and endeavoring by all the arguments I could summon to break up his infatuation, and I thought I had succeeded, until he broke in by saying:

"Moulton, I'll make that machine work. I can't give it up now. I have been at it too long, and I never shall hear the last of it if I stop. I'll be 'Perpetual Motion Bill' as long as I live."—Mechanical Engineer, for September.

CHEATING IN GRAIN SHIPPING.

[From the Kansas City Journal.]

"The wheat pluggers are about as plenty as the men who get the best fruit on the top of the half bushel, the good eggs in the top of the box, the best hay on the outside of the load, and so on. You see, we send millions of dollars every year to convert the heathen in foreign lands, while the heathen at home are cheating their neighbors out of their boots. The word plug has reference to a way dishonest countrymen have of cheating grain shippers. They load the bottom of the car with chaff or bran or low grade grain, and put good grain on top of it, and, as it is sold by sample, when it reaches its destination, and the receiver discovers the cheat, the shipper has to make good the loss.

"Is there much of this plugging done?"

"It is still very common, but not near so much as it used to be. There is never a man sharp enough to invent a trick but there is another sharp enough to detect it. We 'drop onto' all their little games. And there are hundreds of country shippers who can't even now imagine how we inspectors see the bottom of a car without unloading it."

"Well, it is somewhat mysterious—how do you manage it?"

"You see this," said he, taking a charm from his watch chain, "this is the instrument in miniature that we use. By forcing this down through a car of grain and then drawing out the piston we have a vacuum into which, through holes in the sides, the grain falls. This gives us a sample of the grain in every inch of the car to the bottom."

"And yet there are people who will put bad grain on the bottom?"

"Yes, but the complaint is growing less. You see our orders are, when we discover a plugged car to give it the lowest grade on our scale. That sickens them. Some time ago a man sent a car of grain in here with orders to ship it to St. Louis if it didn't grade so and so here. Upon inspection I found perhaps two wagon loads of damaged wheat spread over the car about a foot from the top, so it

was sent to St. Louis. The inspector passed it. A short time after I heard from the shipper. He said it was loaded just as I said it was; but he thought he would run the risk of its passing here or St. Louis."

"What are some of the other plans used to deceive the alert inspector?"

"Well, they will put damaged grain all around the edges, for instance, and put little layers here and there through the car. There is a chance of distributing a wagon load of bad wheat through a car so that the inspector misses it, and, like the men above, they run the risk."

"What is the best trick in your opinion you ever discovered?"

"About the cutest thing I ever seen, I believe, was this: Eastern shippers would fill sacks with bad wheat and distribute them about a car, standing them on the mouth of the sack and fill up the car. When they got the sacks covered they would then pull them out, leaving the bad wheat standing in a column just the size of the sacks, you know, and an inspector might probe all day with his gauge without touching one of those pillars."

"Do you hope to break up the practice in time?"

"We can hardly hope to do that altogether, but we can keep the evil at its minimum, which is about what we are now doing."

CHAFF.

"Why, Sammy," said a father to his little son, "I didn't know your teacher whipped you." "I guess if you'd been in my trousers you'd know'd it," replied Sammy.

"Why," asked a Sunday school teacher of a little boy, "did Jacob marry the two daughters of Labana?" "I dunno, except perhaps he was satisfied with one mother-in-law."

A little girl, a few days since, addressing her sister asked, "What was the chaos, pa was reading about to-day?" To which the latter replied, "'Twas a great pile of nothing, and no place to put it in."

A little man, caught in the belting and whirled around at the rate of a mile in about two minutes, was rescued uninjured. When asked if he wasn't dreadfully frightened, he answered: "I thought my wife had caught me and was running me out by the back of the neck."

STEAM BOILER COVERING AN ELEMENT OF DANGER.

Speaking of the Riverdale disaster, the first engineer of a large and popular river steamboat that carries thousands of passengers during the summer season, recently expressed himself forcibly, not only against the custom of setting boilers so low in a boat, and otherwise so circumscribed, that they cannot be come at for examination, but as well against covering boilers according to present practice, so that the shell, and generally the larger part of the leg, cannot be seen. He emphasized his strictures on the latter practice by relating his own experience that morning—an experience not calculated to be particularly reassuring. In looking over his boilers he saw evidence of a leak in the presence of a small quantity of salt on the covering, and, digging through the felting and following up the "lead" for some distance, he came to a body of salt covering several inches of the shell to a considerable depth. Removing this, he thrust his knife through the iron. In cutting away for a patch the thin, or corroded, area was found tolerably well defined, ending almost abruptly in iron of substantially the original thickness. His argument is that without the covering a slight leak will be at once detected, and remedied before any particular harm is done; but that with the covering it is generally impossible to detect it for some time, and that when it does show itself outside the covering it is often found that the iron is eaten away for quite a distance around the leak, frequently so as to leave the boiler in a dangerous condition. This is the opinion (not the theory) of an observing engineer of many years' experience in steamboating, and carries weight accordingly. Stay-bolts may break, as the engineer referred to justly remarks, and a knowledge of the fact be entirely beyond the observation of the engineer for weeks. With a small lead, especially in a part of a boiler where circulation is sluggish, and in a boiler where more or less salt water is used, salt will deposit around it very rapidly, and the iron is likely to be soon dangerously corroded. If the boilers of steamboats can be satisfactorily covered so that the sections can be readily removed for inspection of every part, then the saving of fuel effected by that means is an important consideration; but if the covering is an element of danger—even a very small one—it should not be permitted. —American Machinist.

THE MARTIN

Improved Centrifugal Flour Dressing Reel!

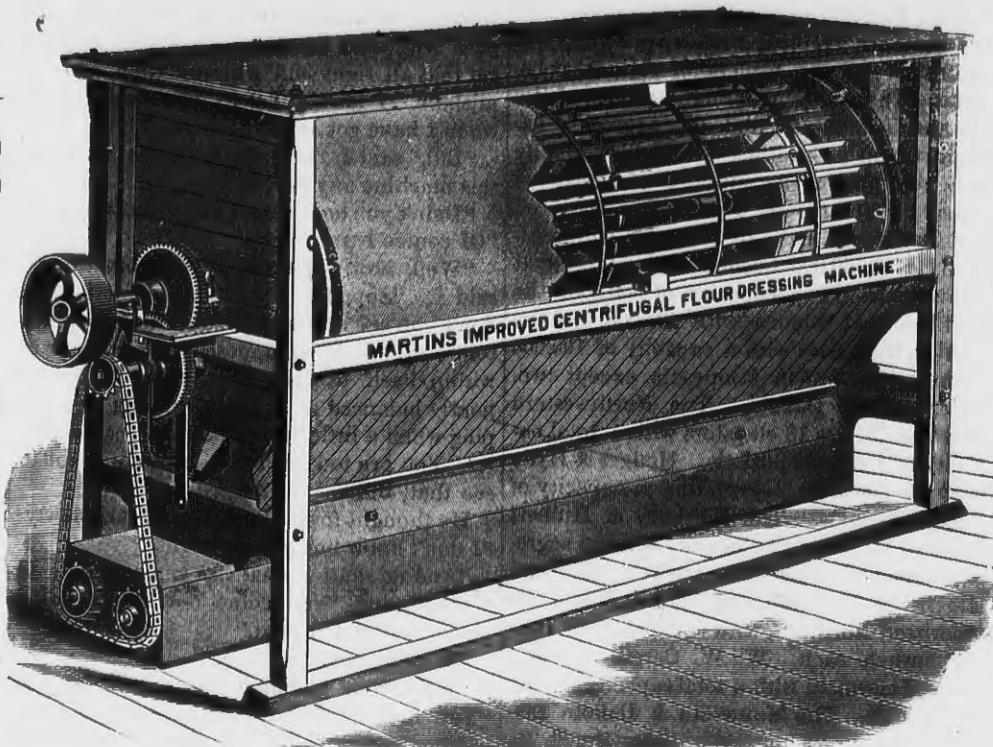
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Largest Capacity,

Best Results,

Lightest Running,

Least Wear of Silk.



Over 1,000 in Use!

Our New Double Conveyors,

New Cloth Fixing and
Stretching Device,New and Improved
Manner of Driving,Are Special Features of the
Greatest Importance.

THE MARTIN CENTRIFUGAL has more than FOUR TIMES the capacity of the ordinary reel, and will make clear flour and a clean finish on stock that cannot be treated in the common reel without loss, no matter how much silk it is passed over.

IT IS ESPECIALLY ADAPTED to handling soft, re ground material, full of light impurities, whether from rolls or stone.

IT IS VASTLY SUPERIOR to the common reel or dusting middlings.

IT IS INDISPENSABLE to a CLOSE FINISH in any system of gradual reduction milling, and will improve the quality of the low grade flour, at the same time it makes the offal cleaner.

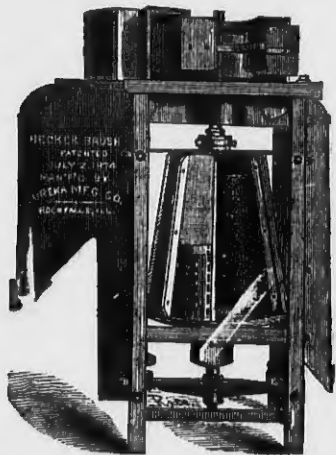
IT MAKES A CLEAN SEPARATION on caked and flaky meal from smooth rolls, which no other style of reel can do.

THEY CAN BE USED TO ADVANTAGE as a complete system of bolting, to the exclusion of the ordinary reel.

Since commencing the manufacture of these reels we have sold them in large numbers to leading millers in all parts of the country, for work in connection with all kinds of reduction machines and on every class of material, and they are giving unqualified satisfaction. We build them in six sizes, suitable for all classes of mills, and ranging in capacity from 200 to 2,000 pounds. Write for circulars, etc.

Geo. T. Smith Middlings Purifier Co., Jackson, Mich.

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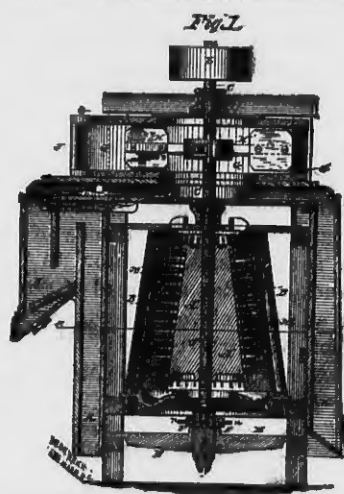
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In the United States and foreign countries, and so far as we know all that use them are pleased. Millers, millwrights, and milling experts claim the Cone Shape Solid Cylinder Brush is the true principle to properly clean grain. All machines sent on trial, the users to be the judges of the work. For price and terms apply to

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Two Through Connections Daily.

Steamer CITY OF MILWAUKEE, Side wheel, leaves her dock at 2:30 P. M. daily, (Sundays included,) and makes the run to Grand Haven in five hours, connecting with 9 P. M. through train for New York, Boston, and all Eastern Points. This is strictly a Passenger Steamer and carries no Freight.

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N. B.—This entire fleet of PALACE IRON STEAMERS is now owned and controlled by the Railway Company. Ticket Office, No. 99 Wisconsin Street, and at dock foot of West Water Street, Milwaukee.

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Sleeping Cars on all night Trains.

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From Oshkosh to all Points North and
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The fishing resorts on the Northern extension of the Line offer unsurpassed inducements to sportsmen. Special excursion rates for parties. Descriptive pamphlet forwarded to any address on application to the undersigned.

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WHAT THE GEO. T. SMITH MIDDINGS PURIFIER CO. ARE DOING IN CANADA.

Within a short time the busy hum of machinery will again be heard in the Thomson & Williams Manufacturing Co's works. The Smith Purifier Co., to which we alluded last week as having purchased the premises, have taken possession, and a force of men is now at work cleaning up the place and overhauling the machinery. In a week or two the whistle will sound again, and the manufacture of improved milling machinery be commenced on an extensive scale. The company, as we mentioned before, own the patents under which the Geo. T. Smith Middlings Purifier is manufactured, besides other valuable inventions for making flour under the systems now in vogue. Grinding flour by the old buhr stones may now be considered a thing of the past, the new style of crushing the grain between rollers having proved much more economical and expeditious. It may be taken for granted that no more mills using stones will be built, and that many of those now in operation on that principle will be converted as speedily as possible. The machinery made by the Smith Purifier Co., being essential to the making of flour under the new process, it is easy to see that the milling interests of the entire Dominion will be tributary to the Stratford Co., and the establishment of a large and profitable business here will be but a question of a very short time. The company possess large practical experience, having controlled the business in the United States for a number of years, and as they have abundant capital they will leave nothing undone to extend their operations to the utmost possible limits. It is their intention at first, we understand, to confine themselves to the special machinery controlled by them, viz: The Smith Purifiers, Centrifugal Reels, and Dusters, but it is altogether probable that they will soon put themselves in a position to turn out everything required for mill outfits. The shops being supplied with patterns and machinery for making the Brown Automatic Cut-Off Engines, which were a specialty of the old company, and also all the patterns of the various machines manufactured by them, the building of these will probably be continued. The force to be employed will be from 50 to 100 men at first, and as far as possible the employees of the old shops will retain their positions. The gentlemen representing the company here have already impressed the people of Stratford with their thorough-going way of doing business, and we have no doubt will soon give a new impetus to the town.

The amount asked from the ratepayers as a bonus to the undertaking is comparatively trifling, and is not actually a bonus to the individuals forming the company, but, as we explained last week, merely to assist in buying out the Toronto concern—this company paying what they considered full value, aside from the assistance received from Stratford. We anticipate no serious opposition to the by-law, which is to be voted on on Monday, the 24th inst. The by-law will be found in our advertising columns, and it will be seen that the town is amply secured against possible loss. The company are not bonus hunters, but men of wealth with a monopoly of a profitable business, and it rarely happens that so desirable an opportunity is offered to any community. The amount contributed by each ratepayer will be insignificant, and the bonus will nearly be repaid by the company in the way of taxes.—*The Stratford Beacon (Ontario).*

A MAGNETIC ADDRESS.

S. S. Cox delivered the annual address before the Ashbury (Ind.) University. In it he gave a graphic picture of the working of the new magnetic elements of our time. He said: "The electric monograph transmits messages in the original handwriting. The hektograph multiplies your epistles; the telephone enables people to make contracts through an orifice; but as there is no witness, photography comes in and records the shadow of the sound by curves in vowels and consonants! Electricity is an element elusive and subtle, yet it is stored in a box and imprisoned in a metal to be used at pleasure, for portraiture, sound, light or power. I have seen an organ in Berlin played with electricity, but this is simple compared with other experiments. Is it not a marvel that we can telegraph from a moving railroad car or the speeding steamship? A California photographer obtains six photographs in one leap of a clown in six different positions. He catches a horse on the gallop, a rabbit on the run, and a bird on the wing. By means of a wire a circular saw or a locomotive may be—nay, has been—run

miles distant from its source of force. Electricity is born of the sun. It may be converted back to its source, so that when one talks by telephone he may see his distant colloquist. It is shrewdly believed that nerve power depends for increased strength on light. The vast current of liquid force which we call electricity is condensed in boxes like desiccated meats, or spread over continents to convey intelligence. Man can never overdraw from this last bankruptless depository of nature. Is it in vegetation? The electric light gives no interval of repose for the growth of fruit, leaf and flower. No sleep for berry or plant between eve and dawn."

AN INDEPENDENCE DINNER.

Capt. Frank P. Lawrence sends us, from Fergus Falls, Minn., the following menu card, which the Silver Moon Hotel, there, used for its Fourth of July dinner. From the underlining of some of the courses, we are led to infer that he especially relished the boiled and the desert:

COMPLIMENTARY DINNER TO THE DEAR BOARDERS,
4TH OF JU-NEW-YEARS, 1883.

BILL OF CYCLONES.

SOUP.
Cork. Sponge. Ox Ears.
FISH.
Fergus Falls Suckers. Speckled Hair Pins.
BOILED.
Old Maid's Lips. Vinegar Sauce.
Mother-in-law Tongue. Son-in-law Dressing.
Bicycles. Park Region Style.
COLD.
Boiled Ice. Fried Icebergs. Stewed Ice.
Ice Wagons, Wheeler's Patent.
ROAST.
Spring Chickens, 30 years Old.
Toothpicks, larded.
Tree Toads, Stuffed with Mice.
ENTREES.
Frogs Brains, Silver Moon Style.
Sawbridge's Locals, Stuffed.
Crushed Molasses on Strawberry, C. O. D. Style.
Elephants on Toast.
Square Dealing Suspenders, a la 26.
GAME.
Picket's Bear, Stuffed with Bismarck Mud.
Golden Eagle on Toast.
Canary Bird, 10 Cents a Cut.
Euchre. Faro. Old Sledge. Hazard.
VEGETABLES.
Tight Boot Corn. Land League Fruit.
Dead Beats.
PASTRY.
Custard Pie Cut Bias. Left Handed Pie.
Leather Pie, with Buckles.
Sawdust Pudding, Pine Sauce.
Oatmeal Pudding, with Horse Radish.
DESERT.
Nigger Kisses. Dough Nuts. Pea Nuts.
Hash. Snow Balls.
LIQUORS.
Rain Water. Boiled Oil. River Water.
Hair Oil. Kerosene. Pump Water.
Magnolia Water. Gasoline. Mucilage.

NEW WHEATS.

Farmers are all anxiously looking for a good white wheat to take the place of the Clawson, which has greatly deteriorated during the past three years. Any new varieties, therefore, that promise well, are eagerly looked for. Among the new white varieties offered this season is one called the Landreth, which is being sent out by Landreth & Sons, of Philadelphia. It is described as a bald wheat, with light yellow straw, heads from four to six inches long, very hardy, and the most productive of several varieties with which it was grown. Among these were the Clawson, Fultz, Mediterranean, Velvet Chaff and Champion Amber. The weight per measured bushel was 62 lbs., and it produced at the rate of 31½ bushels per acre. Parties in Kentucky, Tennessee, Pennsylvania and Maryland, who have grown it this season, speak highly of it as a productive, hardy wheat, of excellent flouring qualities, and likely to be much grown where it has been tested. Mr. Wm. L. Eastman, of Seneca County, N. Y., says:

"I have this year grown the New White Wheat named 'Landreth,' and find it superior to any variety I have ever raised. My experience with the Clawson and other late and popular varieties has been quite extensive, having furnished the United States Agricultural Department with wheat for distribution for several years. I have this year grown

the Landreth and Clawson side by side with equal chances, and find the Landreth superior. It has been entirely free from rust while other varieties have not; it has a large, smooth head, stiff white straw, and is a large producer, having yielded forty-one bushels per acre."

Another new variety is called the Martin Amber. It originated in Pennsylvania, and was first brought to notice in 1878. It is described as a bald wheat, the grain a bright amber, chaff white, heads long and well filled, straw of medium length, and very clean and bright. As to its productiveness, a number of farmers throughout Pennsylvania state that in their opinion it is the coming wheat and the most productive they have ever grown. Mr. A. W. Cheever, editor of the *New England Farmer*, has grown it on his farm, and says of it:

"As compared with our old variety, the Clawson, which has thus far given us better satisfaction than any other variety we have experimented with, the Martin Amber is far in advance in the weight of straw, size and length of head, number of kernels in a head, and particularly in the number of heads in a stool. The Clawson was sowed at least a month earlier the preceding fall."

The Martin Amber is being sent out by J. A. Everitt & Co., of Watsonstown, Pa.

THE J. T. NOYE MANUFACTURING COMPANY'S SPACIOUS ESTABLISHMENT.

We recently announced that the large factory of the J. T. Noye Manufacturing Company, located on Washington street, corner of Perry street, was purchased by the Lehigh Valley Railway Company, upon which to construct a freight depot. The buildings are to be torn down, consequently the milling company found it necessary to provide new quarters. Anticipating this result, Mr. Noye about a year ago purchased a large tract of land lying between Lake View Avenue and Fourth street, Pennsylvania and Jersey. The location is a magnificent one, and admirably situated for the purposes to which it is to be devoted. The land from Fourth street rapidly declines to the canal so that the view of the lake from the works will always be uninterrupted, and, what is better, the cool lake breeze drawing through the buildings will keep the works cool and pleasant during the summer months. For the workmen of J. T. Noye & Co. to be transferred from the banks of the stinking Hamburg canal to the charming spot where the new works are being located, will be like leaving the crowded business streets of the city for a cool and refreshing country retreat.

The plot of land purchased is 630 feet long by 265 feet wide. It includes the entire block with the exception of three small lots facing on Lake View avenue. Spacious works are now being constructed and will be completed by the middle of the winter. The new factory will be a vast improvement on the old one, both as to size (being fully a third larger) and adaptability. In the manufacture of milling machinery much heavy material is used and heavy machinery is employed. Hence the nearer the ground the work can be done the better. In making the plans for the new building, therefore, this point was kept constantly in view, and high structures avoided. A building 42 feet by 281 is now complete and full of machinery. This shop reaches from Fourth street to Lake View avenue. It will be used after the works are complete as a general machine shop. Adjoining this is an engine room 32 feet by 32, enclosing a seventy-five horse-power engine. This engine is designed to furnish power for the machine shop only. Immediately east of this is the foundry, a substantial brick structure, 80 by 120 feet. It is covered by a mansard roof and surmounted by a cupola, 90 feet long, both sides of which and of the roof are well supplied with adjustable windows, so the ventilation will be admirable. Attached to the foundry will be the wood-shop, brass foundry, cupola, core-rooms and a cleaning room annex, 22 by 50 feet, and sand room, 22 by 46 feet.

Still further east is the main building of the works running parallel with Fourth and extending to Pennsylvania street. It will be 300 feet long by 50 feet wide, two stories high. It will be divided into two departments. In the part farthest east and facing on Pennsylvania and Fourth, will be the wood-working machinery. In the other part the rollers will be corrugated and the iron work done. The business will be so arranged that the heavy work in both departments will be done on the ground floor and the lighter parts in the second story. The side walls of this structure are well advanced. Independent of this is the engine and boiler house 16 by 56, enclosing a one hundred horse-power engine which will drive the

machinery in the main building. The entire works will be heated by steam from two immense boilers in this annex.

Adjoining the foundry and running parallel to it will be located a large blacksmith shop, while on the Lake View side is a pattern shop 42 by 132 and three stories high. This building is well advanced. It is the plan to build a large and imposing structure adjoining on the west in the near future for offices, but it will not be undertaken this winter. Every modern labor-saving appliance will be introduced in the works, and the whole made as complete as money, experience and ingenuity can make them. The firm of J. T. Noye & Co. are to be congratulated upon the improvements they are making, and their workmen are greatly to be congratulated on the very pleasant change awaiting them.

The present shop on Perry street, between Main and Washington, will be operated as heretofore.—*Buffalo Commercial Advertiser*, Sept. 17.

The United States Consul at Leeds, England, reports that our tariff is likely to prove disastrous to the woolen trade of that district. As the tendency of other European nations is to protect their own industries by imposing high duties on imports, the English manufacturers reposed fond hopes on the agitation against protection in America. They expected that the revision of our tariff would increase American demand for their goods, and they are intensely disappointed over the turn that matters have taken. They find that the revision leaves them worse off than they were before. Many mills were kept going on the expectation that their production could be shipped wholesale upon the American market as soon as the tariff was revised, and the knocking out of this prop from under them has led to wide-spread stagnation of business. Manufacturers and operatives are now said to be coming to America in large numbers.

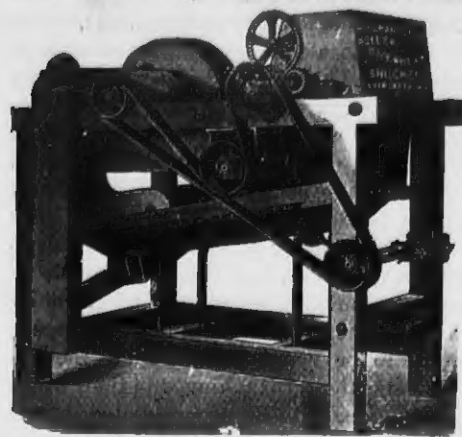
We regret to hear of trade depression in any country, but we can bear with greater fortitude to hear of it abroad than among our own operatives, especially in a case where increased prosperity abroad was going to entail poverty among American mill workers.—*Mechanical Engineer*.

HOW TO RECOGNIZE GOOD WOOD.—Rankine says that there are certain appearances characteristic of good wood, to what class soever it belongs. In the same species of wood that specimen will in general be the strongest and most durable which has grown the slowest, as shown by the narrowness of the annular rings. The cellular tissue, as seen in the medullary rays (when visible), should be hard and compact. The vascular or fibrous tissue should adhere firmly together, and should show no wooliness at a freshly cut surface; nor should it clog the teeth of the saw with loose fibers. If the wood is colored, darkness of color is in general a sign of strength and durability. The freshly cut surface of the wood should be firm and shining, and should have somewhat of a translucent appearance. In wood of a given species the heavy specimens are in general the stronger and more lasting. Among the resinous woods, those having the least resin in their pores, and among non-resinous woods those which have least sap or gum in them, are in general the strongest and most lasting. Timber should be free from such blemishes as "clefts," or cracks radiating from the center; "cup shakes," or cracks which partially separate one layer from another; "upsets," where the fibers have been crippled by compression; "wind galls," or wounds in a layer of wood, which have been covered and concealed by the growth of subsequent layers over them; and hollow or spongy places in the center or elsewhere, indicating the commencement of decay.

MORITZ GROUSMAN, in his Year Book for 1883, gives the following recipe for cementing rubber or gutta-percha to metal: Pulverized shellac, dissolved in ten times its weight of pure ammonia. In three days the mixture will be of the required consistency. The ammonia penetrates the rubber, and enables the shellac to take a firm hold, but as it all evaporates in time, the rubber is immovably fastened to the metal, and neither gas nor water will remove it.

THE six leading agricultural products of the United States, according to the census report of 1880, were in the following order: Corn, wheat, hay, cotton, oats and potatoes. The value of the first was \$600,000,000; of wheat, \$500,000,000; hay, \$330,000,000; cotton, \$232,000,000; oats, \$130,000,000; and potatoes, \$73,000,000.

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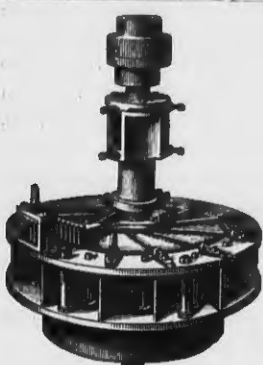
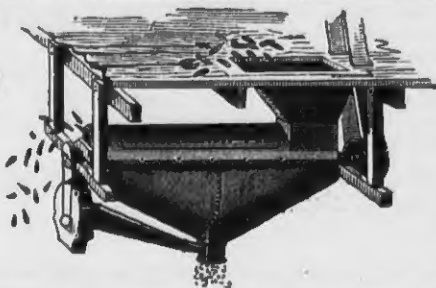
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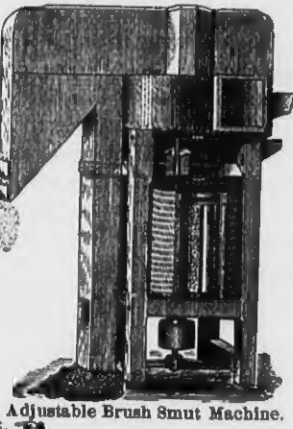
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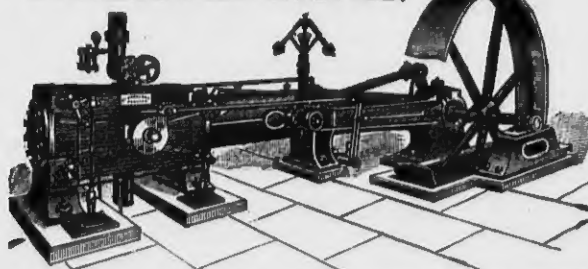
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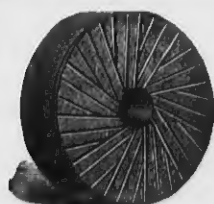
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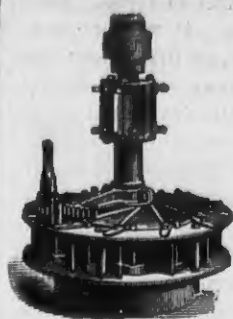
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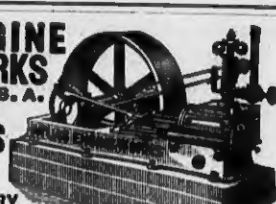
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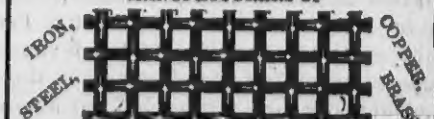
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TECHNICAL EDUCATION.

The general increase in schools of design, technical schools and like institutions, says A. Curtis Bond in a recent issue of the *Popular Science Monthly*, has created no little comment, and given rise, to some extent, to opposition. It is a difficult matter to reconcile the differences between the opponents and those who favor this form of instruction, for the reason that the question, in a measure, is one of pecuniary interest to both parties. There are many instances in which technical education may justly be claimed to be a necessity, especially in those professions which demand a knowledge or a character of schooling that can be more thoroughly conveyed by means of that which instructs in the theories of a craft or art as distinct from its practice. In the case of the architect, for example, nature may indicate the urgencies of the profession; it provides for the beautiful, for the attractive features, but the details it avoids; teachers must show the mechanical portions of the work, and instruct in the principles which make the building possible and form a support for the decorative exterior. The necessity of such teachings was recognized by early nations, and in their architecture and designing its value was taken into consideration, and its spirit must have existed among the early Aryans, as its materialized form did with the skilled and finished draftsmen of Egypt and Greece.

We may easily realize the increased need of technical training to-day over the necessity of two thousand years ago. At that time the artist himself did the work—the actual labor; he evolved the idea and executed it, the brain that conceived the thought guided the hand that gave that thought substance and shape. Every touch of the chisel imparted life, for the spirit of the worker went into the stone, and it was molded and shaped by the genius of the thinker. Now it is mechanical; the artist originates, others execute, and this execution must follow pattern, designs, plans. No scope is given the workman; he is bound by lines beyond which he dare not go, and his fancy, if he has any, serves naught in the creation of his subject; drawings control this creation, and the living translator of those drawings, from what was in the past an intelligent reasoner, has become in the present an automatic machine. Disposing thus of a man's individuality, some means are essential to convey the thought of the designer into the hand of the worker, and customs have grown and laws have been adopted that will serve as a sort of mental telegraph between these two—laws which govern the flight of the artist's fancy and instruct the artisan in an understanding of the designer's purposes. Taking this view of the situation, it is certainly necessary that talent should be technically tempered.

It is not to be expected that every one learning a trade will become an expert or an innovator; ability to comprehend the requirements of trades is developed in either the shop or the school, but the regrets so often expressed by those who have grown up from apprentices for their lack of education evinces the limited possibilities of practical knowledge simply, and demonstrates, in a measure, the necessity for an early instruction in the theories, if one thinks to introduce improvements and progressions in his profession. The want of education, with which most apprentices must contend, interferes in other ways with their progress. The master is apt, in many instances, to exaggerate the difficulties to be overcome, and enlarge upon the mysteries surrounding his work-bench. The doubt this would arouse in an unschooled mind might be fatal to success, and the superstition that there was something impossible for the apprentice to comprehend is liable to remain with him as a drag-net to his future usefulness, trammel his ambition, and perhaps turn his abilities into a channel less profitable to himself and to the world.

Technical schools, adopting, as they do, a different course, impress the students with the comparative simplicity of business, and give them the feeling of ability to grasp and utilize the intricacies and peculiarities of the trades. That which is formidable to the uninstructed becomes a *bagatelle* to those familiar with the details and with those who have an intelligent theoretical acquaintance with the governing principles. It is true, this theoretical knowledge cannot provide for all emergencies that are likely to occur in the workshops, but it lays a foundation which will aid the student, when those emergencies present themselves, in comprehending and overcoming the difficulty; and it is a question we would be loath to decide in the negative,

whether or not a mechanic, who, after being educated in a technical school, had had a reasonable experience in a shop, would not find a readier and more effective remedy for an accident than one who had been brought up in a shop and lacked school training.

Another consideration worth noting is the comparatively short time during which a man improves his skill in the trade or art he may have adopted. The Technical Commission of Great Britain sets the period at from 10 to 15 years as a maximum, and this may be regarded as a reasonable estimate for the time at the end of which progress in the individual ceases; and such being the case, it is proper to give at the outset all the helps toward developing talent that are attainable. Technical education may be one of these helps. If it were possible to acquire theory and practice at one and the same time, its desirability would be indisputable, but we imagine this in its true sense is impracticable. The practice obtained in technical schools is not the real, genuine, unadulterated article, and it would be a dishonest teacher who would put forth any such claim. It is impossible to foresee, as we have said, all the necessities that arise, and are likely to arise, in the course of business experience, and they absolutely require, when they obtrude upon the regular course, the judgment of a mind that has been accustomed to coping with difficult situations where a failure to devise a remedy at once meant an utter failure of the entire work.

But one of these qualifications must, in the order of things, precede the other, and we are confronted with the question, which shall it be? Theory—that is, the comprehension and understanding of whatever we undertake—is the foundation upon which practice may build, theory will necessarily acquire the mechanical ability to put its ideas into shape by a reasonable amount of practice; but practice, though it be of years, does not by any means guarantee theoretical, or even an intellectual, appreciation of the results that labor accomplishes, and without this what can be expected from the mechanic? We certainly should not ask for improvements from a man who does not understand the foundation principles of the mechanical part of his work. Starting with a fairly good technical or theoretical education, one grapples with the problems of business more intelligently and in most cases, more successfully. If one chance to become an employer, he can utilize the practice of his employees to demonstrate his theories, and often will this theorizing, and the thoughts created by an early technical education, suggest means for lightening, simplifying and improving the labor that practice had failed to find an opportunity of modifying.

THE POWER OF EXPLOSIVES.

The dynamite scare in England has led to the publication in the English journals of a number of letters on the power of explosives from which we choose the following written by Mr. George M. Roberts, the technical manager of Nobel's Explosive Company, Limited, who writes:

Nitro-glycerine and dynamite do not, when exploded, exert such a force as is popularly believed. To speak precisely, the power developed by the explosion of a ton of dynamite is equal to 45,675 tons raised one foot, or 45,675 foot-tons. One ton of nitro-glycerine similarly exploded will exert a power of 64,452 foot-tons, and one ton of blasting gelatine similarly exploded, 71,050 foot-tons. These figures, although large, are not enormous, and need not excite terror. Seventy-one thousand tons of ordinary building-stone,



A Stool of Martin Amber Wheat.
(See article entitled New Wheat on page 99.)

if arranged in the form of a cube, would measure only 96 feet on the side, and if it were possible to concentrate the whole force of a ton of blasting gelatine at the moment of explosion on such a mass, the only effect would be to lift it to the height of a foot. The foregoing figures are derived from experiments made at Ardeer with an instrument which gives accurate results in measuring the force of explosives. The power exerted by an explosion on surrounding objects is in the inverse ratio of the cube of the distance from the point of explosion. Thus, at 100 feet from the exact point of an explosion, the power is only the cube of 1-100, or 1-1,000,000th part of what is at a distance of only one foot from that point; or, in other words, if the power at one foot from the spot be represented by 1,000,000, at the distance of 100 feet it will be but one. It is thus seen that the effects are intense locally, but comparatively trifling at even short distances. If a ton of dynamite or nitro-glycerine were exploded in a London street, the effects would be felt severely in the immediate neighborhood only of the explosion, and beyond that they would be confined to the mere breakage of windows. Indeed, it would be impossible by a single explosion, however large, to do damage to any considerable extent beyond the immediate neighborhood in which the explosion took place. On one occasion I happened to witness the explosion of over a ton of nitro-glycerine from a distance of only 60 yards. The nitro-glycerine was about ten feet beneath the level of the ground which was of sand and covered with water. Beyond the breakage of windows and the bursting of a few doors in the surrounding buildings, there was no damage done. A little sand was thrown over me, but I received no personal injury. Vague statements have been made from time to time, promulgated to induce the belief that there are stronger explosives than nitro-glycerine and nitro-glycerine preparations, and that the wretched men who have been guilty of the late attempts on public buildings, etc., are in possession of more powerful explosives than any known to chemists. The public may rest assured that such is not the case. Nitro-glycerine and its preparations form the strongest explosives yet known. The strongest of these is the material known as blasting gelatine. It consists of nitro-glycerine combined with a certain proportion of nitrated cotton. It is much more difficult to prepare than either nitro-glycerine or dynamite, and cannot be made by unskilled persons. If the power of dynamite be represented by 1000, that of nitro-glycerine will be 1411, and of blasting gelatine 1555. The 1½ cwt. of nitro-glycerine seized by the police the other day would, if exploded, exert a force of only 4833 foot-tons, and if converted into dynamite it would represent a force of only 4567 foot-tons. The conversion of nitro-glycerine into dynamite reduces the power of the former, but renders it more easy and safe to handle and use. The power given above is comparatively insignificant, and as it is the maximum effect that could be produced under the most favorable circumstances on the very spot of explosion, it never could be obtained in practice. It is therefore absurd to say, as was said the other day in a London paper, that the explosion of such a quantity of nitro-glycerine would blow up the whole of London. In fact, the explosion could scarcely be heard over London, and the damage done by it would be strictly local. I have often, by way of experiment exploded one pound of dynamite suspended from the end of a fishing-rod by a string about six feet long, holding the rod in my hand the while. As there was no solid matter to project, I received no injury, and the end of the fishing-rod was not even scratched. About three feet of the string at the end of the rod was always left uninjured.

ENCOURAGEMENT OF TRADE JOURNALS.

The *Builder* and *Wood-Worker* says that "the encouragement of technical and trade journals augurs well for the advancement of manufacturing and mechanical industries. No matter how skilled may be a workman, his fellow craftsmen possess secrets of which he is ignorant, and which can, as a rule, only receive the proper dissemination by being published in the specially technical papers, that are doing so much for the elevation of the American artisans and their numerous callings, in which the public are so intensely interested. Every mechanic who prides himself in his particular line, ought to subscribe to a trade journal—one representing more closely the branch of work in which he is engaged. This should be read closely and carefully, and the hints and suggestions thrown

out must be noted with a view of giving them practical test. By pursuing this commendable course, a greater degree of technical skill is acquired at a trifling expense of time and small outlay of money. Then, too, a knowledge is obtained as to the better class of new text books appearing from time to time bearing on the exact sciences and applied mechanics. Besides all this, the general news of particular localities as to the progress thereof is an especial feature characterizing these papers, of which sight cannot be lost without detriment to the loser. To be well posted is as much stock in trade with a mechanic as it is to a merchant or professional man. The trade journal is fast becoming, under wise and faithful guidance, as much of a necessity as the daily papers."

STEEL AND IRON TESTS.

Nitric acid, says *Electricity*, will produce a black spot on steel; the darker the spot the harder the steel. Iron, on the contrary, remains bright if touched with nitric acid. Good steel in its soft state has a curved fracture and a uniform gray luster; in its hard state a dull, silvery uniform white. Cracks, threads or sparkling articles denote bad quality. Good steel will not bear a white heat without falling to pieces, and will crumble under the hammer at a bright red heat, while at a middling heat it may be drawn out under the hammer to a fine point. Care should be taken before attempting to draw it out to a point that the fracture is not concave; and should it be so, the end should be filed to an obtuse point before operating. Steel should be drawn out to a fine point and plunged into cold water; the fractural point should scratch glass. To test its toughness, place a fragment on a block of cast iron; if good, it may be driven by the blow of a hammer into the cast iron; if poor, it will crush under the blow. A soft, tough iron, if broken gradually, gives long, silk fibers of leaden-gray hue, which will twist together and cohere before breaking. A medium, even grain, with fibers, denotes good iron. Badly refined iron gives a short blackish fiber on fracture. A very fine grain denotes hard, steely iron, likely to be cold-short and hard. Coarse grain, with bright crystallized fracture or discolored spots, denotes cold-short, brittle iron, which works easily when heated and welds well. Cracks on the edge of a bar are indications of hot-short iron. Good iron is readily heated, is soft under the hammer, and throws out few sparks.

SEVEN FOOLS.

Punch gives a list of seven fools as follows:

1. The envious man—the man who sends away his mutton because the man next him is eating venison.
2. The jealous man—who spreads his bed with stinging nettles, and then sleeps on it.
3. The proud man—who gets wet through sooner than ride in the carriage of an inferior.
4. The litigious man—who goes to law in hopes of ruining his opponent, and gets ruined himself.
5. The extravagant man—who buys a heron and takes a cab to carry it home.
6. The angry man—who learns the ophicleide because he is annoyed by the playing of his neighbor's piano.
7. The ostentatious man—who illuminates the outside of his house brilliantly, and sits inside in the dark.

In regard to the smoke nuisance P. Barnes, mechanical engineer, of Elgin, Ill., says:

The case in brief is this, that without exception the fixtures or attachments which employ air or steam jets or any similar means have always been found to lead to greater expense for fuel, and to be wholly useless when left in ordinary and indifferent hands. On the other hand any boiler of any reasonable or probable construction, in the hands of an interested and willing fireman, can be made to do its full duty without any more smoke than would be passed at once by an inspector, and with an entire saving of the fuel which would be otherwise wasted in the needless working of the attachments upon which so many words have recently been spent.

The *Minneapolis Northwestern Miller* says that from the report of the receipts and shipments from that city during the past year, it may be seen that 4 bushels 39½ pounds of wheat are required to produce a barrel of flour. This is the average of grinding over 18,000,000 bushels of wheat, and may be taken as a fair figure on spring wheat of medium quality as it ran during the year ending August 31 last.

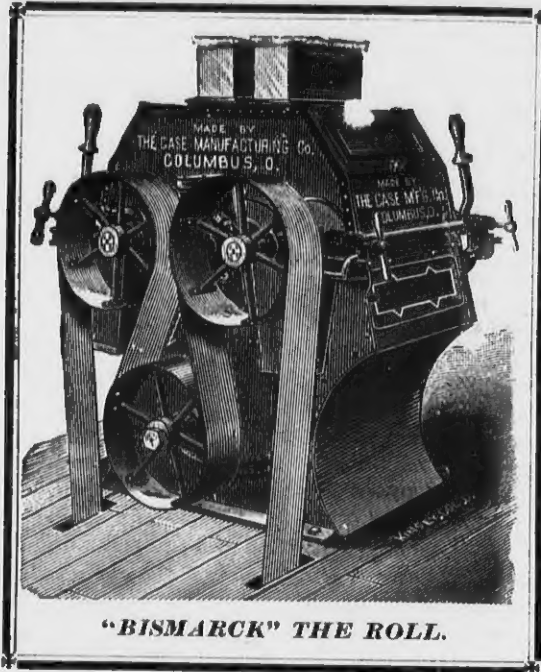
The Case Manufacturing Co.

Case Manufacturing Co., Columbus, Ohio.

Ann Arbor, Mich., September 11th, 1883.

GENTLEMEN:—Owing to the misrepresentations of agents of rival systems, we several times decided not to use the Case system, when about to place some roller system in our mill. Like many other matters, however, this would not stay decided until decided right. We gave the system an investigation, and concluded to adopt it.

Now as to results, our flour has given satisfaction wherever used. Our New York agent, writes of our straight grade, "it is the handsomest flour, except full patents, that we have had from your state."



"BISMARCK" THE ROLL.

The reports from other markets are of a similar nature. What neighboring millers think of the system is shown by the fact that it has been adopted, both as to Rollers and Purifiers, in two other mills in this vicinity, and we understand is to be substituted in another, making four mills on your system within eight miles of Ann Arbor.

Finally, as the senior member of our firm has himself been a practical mill builder for over forty years, we believe our own opinion entitled to some weight; it is that the Case system of milling is superior to all others, and that any miller adopting it will find it entirely satisfactory, both as to quality of work and simplicity of machines.

Very cordially yours,

R. K. AILES & CO.

Case Manufacturing Co.

Orrville, Ohio, Sept. 19, 1883.

Gentlemen:—The Feed you put on my Rolls is the thing to save the Millers from trouble.

Yours truly,

O. K. GRIFFITH.

THE CASE MIDDLINGS PURIFIER

A—The Fan spout, is reversible and can be made to blow toward either end of Purifier.

The Fan can be placed on top or end of Purifier—when on end it increases the length 39 inches, and diminishes the height 22 inches.

B—Air-valve upper Riddle.

C—Cut-off for upper Riddle, sliding one-half the length of Riddle.

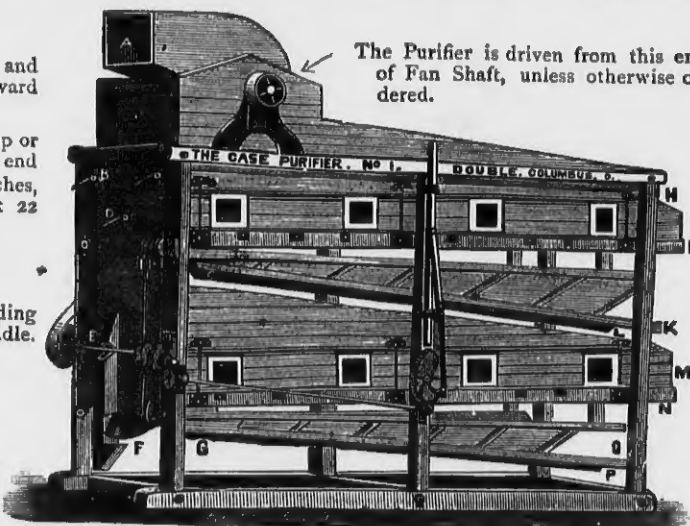
D—Air-valve, lower Riddle.

E—Upper Riddle tails off here.

F—Lower Riddle tails off here.

G—Cut-off for lower Riddle, sliding one-half the length of Riddle.

The Purifier is driven from this end of Fan Shaft, unless otherwise ordered.



H—Feed Box for upper Riddle.

I—Bolting Cloth for upper Riddle.

K—Purified Middlings from upper Riddle.

L—Cut-off from upper Riddle.

M—Feed Box for lower Riddle.

N—Bolting Cloth for lower Riddle.

O—Purified Middlings from lower Riddle.

P—Cut-off from lower Riddle.

The upper and lower halves are each a complete machine, and can be run together, or separately, as desired.

Case Manufacturing Co., Columbus, Ohio.

Roseburg, Oregon, Sept. 3d, 1883.

GENTS:—Although you have not asked us for a recommendation of your Purifier, we deem it our duty to write you one, having found after using your machine, that in our judgment it is far superior to any other machine we have ever seen in operation. We would not give it for any "Smith" Purifier we have ever seen. It is no wonder the Smith Co. tried to shut you up, and we hope for the good of the milling fraternity, and to repay you for your trouble and expenses, that you will never be defrauded out of your patents.

We predict large sales of your machines, as they are much cheaper in price, and do superior work to any other we know of. We could mention their superior points but it would take too much space. If any one wants to hear anything further about your Purifiers refer them to us, for we cannot praise your machinery too highly.

Yours truly,

CROCKER & DODGER.

The Case Manufacturing Co. will have on exhibition at the approaching Chicago Exposition, a sample line of their Breaks, Rolls, Purifiers, &c., which will be in charge of Messrs. Wm. E. Catlin & Co., their Chicago agents.

Address,

CASE MFG. CO., COLUMBUS, OHIO.

[Please mention the UNITED STATES MILLER when you write to us.]

NEWS.

Lawson & Bell, Gallipoli, O., recently ordered a Gray's noiseless belt roller mill of Edw. P. Allis & Co.

Amendt & Son, Piqua, O., have ordered a Gray's noiseless belt roller mill.

Edw. P. Allis & Co., Milwaukee, recently sold Beach Bros. of Beatrice, Neb., a Gray's noiseless belt roller mill.

Haggerty, Hunter & Co., Peoria, Ill., a Gray's noiseless belt roller mill for Darlington, Ill.

The Hudsons of Terre Haute, Ind., are putting in another Gray's noiseless belt roller mill.

A. Root & Co., Hersey, Mich., lately purchased a Gray's noiseless belt roller mill of Allis & Co., Milwaukee.

The Case Mfg Co., Columbus, O., have been ordered to ship M. J. Bewley, Fort Worth, Texas, one centrifugal reel.

Tuttle & Co., Columbia City, Ind., will start up their mill in a few days, on the "Case" system.

The Case Mfg Co. have an order from J. & W. Oxenford Lake City, Iowa, for one No. 2 double purifier.

Dennis & Slough, Westerville, O., have lately started up their mill on the "Case" system with splendid results.

R. Tuttle & Co., Columbia City, Ind., will start up their mill in a few days on the Case system.

The Case Mfg Co. have an order from J. & W. Ornkford, Lake City, Iowa, for one No. 2 double purifier.

Dennis & Slough, Westerville, O., have lately started up their mill on the Case system with splendid results.

The Case Mfg Co., Columbus, O., have just shipped J. W. Deemer, Grant City, Iowa, one No. 2 double purifier.

S. F. McDonald, Oxford Mills, Iowa, has lately started up his mill on the Case system of gradual reduction.

L. A. Jacobs, Puna, Ill., has lately started up his mill on the Case system of gradual reduction.

Werner Miller & Co., Wright City, Mo., have ordered three additional sets of rolls from the Case Mfg Co.

Odell rolls have been ordered for the mill of Montgomery & Co., Odyke, Ill.

C. E. Dexter, Live Oak, Fla., just placed his order for a 18 inch wheel with the Stillwell and Bierce Mfg Co.

Reiling & Co., Bellevue, Iowa, have improved their mill by adding an Allis-Gray roller mill, purchased from Edw. P. Allis & Co., Milwaukee, Wis.

McKimmon & Co., Concordia, Kas., are putting in a Gray's noiseless roller mill, purchased from Edw. P. Allis & Co., Milwaukee, Wis.

Chas. F. Nelson, Sedalia, Mo., recently purchased a Gray's noiseless belt roller mill from Messrs. Edw. P. Allis & Co., Milwaukee, Wis.

Jewell Mill Co., of Brooklyn, N. Y., recently ordered nine Gray centrifugal rolls of Edw. P. Allis & Co., Milwaukee.

E. T. Archibald & Co., Dundas, Minn., lately purchased eight pairs of Allis rolls in Gray's noiseless belt frames from Edw. P. Allis & Co., Milwaukee, Wis.

M. D. Blish & Crane, Seymour, Ind., recently ordered three pairs Allis-Gray rolls in belt frames, centrifugal reel etc., of Edw. P. Allis & Co., Milwaukee.

The E. P. Lumber Co., of Montague, Mich., recently ordered a Gray's noiseless belt roller machine from Edw. P. Allis & Co., Milwaukee, Wis.

Waxton & Thompson, Troy, N. Y., recently ordered a Gray's noiseless belt roller mill from Edw. P. Allis & Co., Milwaukee, Wis.

W. S. Colburn of Neillsville, Wis., is putting in a No. 2 four-break machine and Allis-Gray roller mill, ordered of Edw. P. Allis & Co., Milwaukee, Wis.

Tadd & Stanley Mill Furnishing Co., St. Louis, recently ordered four pairs Allis rolls from Edw. P. Allis & Co., Milwaukee.

Green & Heaton, Reedsburg, Wis., lately purchased a Gray's noiseless belt roller mill from Edw. P. Allis & Co., Milwaukee, Wis.

T. C. Graden & Co., Durango, Cal., have ordered ten pairs of the celebrated Allis rolls in Gray's noiseless belt frames. They intend to remodel to the roller system.

Edw. P. Allis & Co., Milwaukee, have recently received orders from the Pacific coast, for fifty-nine pairs of the celebrated Allis rolls in Gray's noiseless belt frames.

Johnson & Jarret, Des Moines, Iowa, six pairs Allis rolls in Gray's noiseless belt frames, for Lightner & Duncan, Mitchellville, Iowa.

Bass Foundry and Machine Works, Ft. Wayne, Ind., two reduction machines and six pairs Allis rolls in Gray's noiseless belt frames, for D. Rodbaugh, New Paris, Ind.

A. A. Taylor, of Toledo, N. Y., has recently put in another Gray's noiseless belt roller mill, purchased from Edw. P. Allis & Co., Milwaukee, Wis.

The Saxony Mills, at St. Louis, recently ordered four pairs more of Allis rolls in Gray frames, from Allis & Co., Milwaukee.

The Case Mfg Co., Columbus, O., have an order from Graham & Gilham, Trenton, Mo., for one pair of smooth rolls, with patent automatic feed.

The Case Mfg Co., Columbus, O., have an additional order from Y. M. Rizer, of Franklin, Tenn., for breaks and rolls.

J. F. Schoellkopf, Black Rock, N. Y., has ordered one patent automatic feed box from the Case Mfg Co., Columbus, Ohio, for his Smith purifier.

The Case Mfg Co., Columbus, O., are furnishing Isaac Harb, Polo, Ill., with one "Little Giant" break machine, and two pairs rolls with patent automatic feed.

The Case Mfg Co., Columbus, O., have an order from E. T. Shatzer & Co., Evansville, Ind., for one Case centrifugal reel.

The Case Mfg Co., Columbus, are furnishing Geo. T. Dawley, Royalton, Wis., one No. 1 double purifier, and one four roller "Bismarck" mill with patent automatic feed.

The Case Mfg Co., Columbus, O., have an order from Thos. Mosher, Springfield, Mich., for purifiers, breaks, rolls, etc., etc.

The Case Mfg Co., Columbus, O., have an order from E. T. Noel, Nashville, Tenn., for six additional sets of Case rolls.

Odell rolls have been ordered by McMahan Bros., Burlington, Kan. They have also placed orders with the Stillwell and Bierce Mfg Co. for other mill machinery.

Four pairs of Odell rolls have been ordered from the Stillwell & Bierce Mfg Co., for the mill of C. C. Dobson & Son, Cherryvale, Kan.

Hardesty Bros., Canal, Dover, O., have recently placed their order with the Stillwell & Bierce Mfg Co. for the Odell rolls.

The Stillwell & Bierce Mfg Co. have orders from Julius Knofer, Farmington, O., for two pairs of Odell rolls for germ and bran.

The Stillwell & Bierce Mfg Co. are furnishing six pairs of Odell rolls for the mill of A. M. Dunn, Fairfield, O., which is to be changed at once to the Odell system.

Krauss Bros., Coryville, Pa., are remodeling their mill according to plans furnished by the Stillwell & Bierce Mfg Co. They use ten pairs of the Odell rolls.

The Stillwell & Bierce Mfg Co. furnish Edward Johnson of Zanesville, O., for his oat meal mill, a 14-inch Victor turbine.

J. J. Scott & Bro., Lynchburg, Va., have ordered from the Stillwell & Bierce Mfg Co., a Victor turbine to drive their mill.

The Stillwell and Bierce Mfg Co. are furnishing a Victor water wheel to run the flour mill of Cassell & Co., Zanesville, O.

The Case Mfg Co., Columbus, O., are furnishing Isaac Hesb, Polo, Ill., with one "Little Giant" break machine, and two pairs rolls, with patent automatic feed.

The Case Mfg Co., Columbus, O., are furnishing G. M. Schramm & Son, Pontonsue, Ill., with a line of rolls, purifiers, etc.

The Case Mfg Co., Columbus, O., have an order from E. G. Shatzer, Evansville, Ind., for one centrifugal reel, to be placed in the mill of Williams & Kelly, Winslow, Ind.

Geo. P. Waterhouse of Salem, Oregon, recently sent in an order to Edw. P. Allis & Co., Milwaukee, Wis., for ten pairs of the celebrated Allis rolls in Gray's noiseless belt frames, for a mill in Washington Territory.

Upham, Son & Co., Blue Rapids, Kas., are putting in the roller system, and have placed order with Edw. P. Allis & Co., Milwaukee, Wis., for ten pairs of Allis rolls in Gray's noiseless belt frames.

Wells & Nieman, Schuyler, Neb., have placed order with Edw. P. Allis & Co., Milwaukee, Wis., for eight pairs Allis rolls in Gray's noiseless belt frames, purifiers etc., to improve their mill.

Gehlen Bros., Lemars, Iowa, lately ordered a No. 2 four-break machine, and the iron work necessary to remodel their mill to the roller system, from Edw. P. Allis & Co., Milwaukee, Wis.

The Garden City Mill furnishing Co., of Chicago, are putting in rolls etc., for Geo. Miller, Angola, Ind., and have placed order with Edw. P. Allis & Co., Milwaukee, Wis., for Allis-Gray roller machines.

Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., are remodeling the mill of C. A. Roberts & Co., at Fargo, D. T., and will use six pairs of Allis rolls in Gray's noiseless belt frames.

The Gate City Mill Co., of Rapid City, D. T., are putting in a roller outfit, and have ordered their rolls, iron work and a No. 2 four-break machine, of Edw. P. Allis & Co., Milwaukee, Wis.

Edw. P. Allis & Co., Milwaukee, Wis., recently received contract for remodeling T. Lloyd Fulma & Co.'s mill at Haltboro, Pa., and will put in fourteen pairs of Allis rolls in Gray's noiseless belt roller frames.

Johnson & Jarret, of Des Moines, Iowa, recently placed an order with Edw. P. Allis & Co., Milwaukee, Wis., for a Gray's noiseless belt roller mill for job of theirs at Atlantic Iowa.

Edw. P. Allis & Co., of Milwaukee, Wis., are furnishing a complete line of Allis rolls in Gray's noiseless belt frames, for the Colorado Mill & Mercantile Co., of Denver, Col., and have a contract for the same.

Reddeman & Jaeger, Sanville, Wis., are putting in a full line of the celebrated Allis rolls, in Gray's noiseless belt frames, purchased from Edw. Allis & Co., of the Reliance Works, Milwaukee, Wis.

J. Q. Halteman & Co., St. Louis, Mo., recently sent in an order to Edw. P. Allis & Co., Milwaukee, Wis., for a Gray's noiseless belt roller mill, for Burdett & Wicks, Eldorado, Wis.

The Case Mfg Co., Columbus, O., have the order of Poage & Son, Ashland, Ky., for eight pairs rolls, breaks, scalpers, purifiers, centrifugals &c., for a full gradual reduction mill on the "Case" system.

The Case Mfg Co., Columbus, O., have an order from E. J. Smith, Springfield, Neb., for rolls, breaks, and purifiers; the rolls and purifiers to have their patent automatic feed.

The Case Mfg Co., Columbus, O., have an order from G. J. Smith, Springfield, Neb., for rolls, breaks, and purifiers; the rolls and purifiers to have their patent automatic feed.

The Stillwell & Bierce Mfg Co. have a recent order from Reblitz Bros., Chilton, Wis., for a pair of Odell rolls for their mill which is to be remodeled at once. They also furnish them plans and programme on the Odell system.

The mill of Isaac Groat, Millersville, O., has also been recently started. This mill has in the Odell rolls and system, and has few equals and no superior in the quality of its products and its yields.

George Brose of Evansville, Ind., who has been remodeling his mill to the Odell system, started it up last week. He has a full line of the Odell rolls. The mill is doing very fine work, and no changes had to be made.

C. A. Pillsbury & Co., of Minneapolis, Minn., are putting in ten pairs more of the celebrated Allis rolls in Gray's noiseless belt frames, purchased from Edw. P. Allis & Co., Milwaukee, Wis. This shows the appreciation of this firm of the Allis-Gray machines.

Jno. D. Allen, Fall River, Kas., is about to commence remodeling his mill to the roller system, and has placed orders with Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., for ten pairs of their new style roller machines, etc.

The Goodlander Mill and Elevator Co., Ft. Scott, Kas., will soon be operating on the complete roller system, having recently purchased six pairs of Allis rolls in Gray's noiseless belt frames, Gray purifiers etc., from Edw. P. Allis & Co., Milwaukee, Wis.

Edw. P. Allis & Co., Milwaukee, Wis., have the contract for remodeling the mill of Thompson Bros., Gaun, O., to a complete roller mill of 200 bbls. daily capacity, and are furnishing the entire machinery, including fourteen pairs of the celebrated Allis rolls in Gray's noiseless belt frames.

Another four-break reduction mill gone—this time Thos. Humphreys was the lucky purchaser: he also purchased a Gray's noiseless belt roller mill of Allis & Co., Milwaukee, for the improvements he is making in his mill at Salisbury, Md.

Haloway & Cault, Fall River, Wis., are putting in the roller system, and have ordered the necessary machinery, including a No. 2 four-break machine, four pairs of the celebrated Allis rolls in Gray's noiseless belt frames, centrifugal reel etc., of Edw. P. Allis & Co., Milwaukee, Wis.

Silas Carey, Lehigh, Ia., lately decided he would have to adopt the roller system in order to cope with the other mills around him, and has contracted with Edw. P. Allis & Co. of the Reliance Works, Milwaukee, Wis., for the outfit, consisting of a No. 2 four-break machine, Gray's noiseless belt roller mills, centrifugal reels, etc.

The mill of H. H. Groat, Fertility, Pa., which has lately been remodeled, has been started, and gives complete satisfaction. The flour was sold away ahead of production. This mill was planned by the Stillwell & Bierce Mfg Co., Dayton, O., and is furnished with Odell rolls.

The mill of E. G. Brooke, Birdsboro', Pa., has just been started. This mill has a capacity for 100 bbls. per day. It was built according to plans furnished by Mr. U. H. Odell, milling engineer for the Stillwell & Bierce Mfg Co., Dayton, O. It is a complete success, and was from the start.

The mill of Hardesty Bros., Canal, Dover, O., is finished and has been running a short time. This mill was built according to the plans and system furnished by the Stillwell & Bierce Mfg Co. Odell rolls of course are used, and also the Odell system. The mill is a complete success.

The Stillwell & Bierce Mfg Co. have just started up the mill of Boos, Fallor & Co., Newtonville. No changes were made in the mill, and it was a success from the time it was started. It is entirely satisfactory to the miller, and the flour finds ready market.

The Stillwell & Bierce Mfg Co. have recent orders from Wm. May, Lee, Mass.; Morris Martin, Reed City, Mich.; The Pray Mfg Co., Minneapolis, Minn.; Roster & Bro.; Atlanta, Ga.; and J. A. Cole, Rochester, Minn., for Victor turbine water wheels.

The new 800-bbls. mill of J. W. Kaufman, recently completed by Edw. P. Allis & Co., has just been started off with excellent results; the mill went off, like an old mill, and did not have to be changed at all. This speaks well for the millwright, O. H. Carleton, who had the construction of the mill in charge.

Stillman, Wright & Co., of Berlin, Wis., find they can't get along without Allis rolls, although they have a line of Stevens rolls in, and recently sent in an order for four pairs of Allis rolls in Gray's noiseless belt frames, to be filled at the Reliance Works of Edw. P. Allis & Co., Milwaukee, Wis.

The Case Mfg Co., Columbus, O., have been awarded the contract of F. M. Bushy & Son, Lebanon, Ind., for a full gradual reduction mill on the Case system, using eight pairs of rolls, in connection with their breaks, purifiers, centrifugals, scalpers, &c. This mill will come in competition with some of the best roller mills of other manufacturers, and the Case Co. do not hesitate to guarantee results.

The Case Mfg Co., Columbus, O., sometime ago furnished Banks & Sweeney, Blackburn, Mo., with a partial line of machinery. They were so well pleased with the machines they purchased that they have now placed their order with the same company for a complete outfit of rolls, purifiers, centrifugals, &c., for a full gradual reduction mill on the Case system.

Edw. P. Allis & Co., Milwaukee, Wis., recently received quite an important contract, viz: that of the erection of a complete all-roller, 175-bbls. mill, for the Nashville Mill Co., of Nashville, Tenn. Allis & Co. furnish the entire outfit, including twenty pairs of the celebrated Allis rolls in Gray's noiseless belt frames. The work is being rapidly pushed forward to completion, and when completed will be one of the finest mills of the size in the South.

Edw. P. Allis & Co., have recently captured some pretty good orders in Colorado, among which are: Standard Mill and Elevator Co., Ft. Collins, Col., machinery to remodel a 100-bbls. mill to the roller system, using a full complement of Allis rolls in Gray frames; Also, J. Sternburg, Boulder, Col., Gray's noiseless belt roller mills, and Allis & Co. are furnishing the roller machines, etc., for the new mills at Denver.

The Case Mfg Co., Columbus, O., have been awarded the contract of W. H. Childs, Abilene, Kas., for a complete outfit of breaks, rolls, purifiers, centrifugals, &c., for a full gradual reduction mill, on the Case system. Mr. Childs put in two sets of the Case rolls some time ago, and now shows his appreciation of the same by placing his order with the same company for a full outfit.

The Case Mfg Co., Columbus, Ohio, has a line of their breaks, rolls and purifiers at the Chicago Exposition, under the charge of their Chicago agents, W. E. Catlin & Co.; one of the features of their display will be a four-roller Bismarck mill in operation, showing the advantages of their patent automatic feed and simple adjustment. The feed and rolls are becoming more important than ever, and it will be a good opportunity for millers to inspect this feed.

Proctor Taylor, Pontiac, Ill., will soon commence remodeling his mill and has contracted with Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., for the entire outfit of machinery. The mill, when completed on the roller system, will have a capacity of from 75 to 100 bbls. per day, and will contain ten pairs of the celebrated Allis rolls in Gray's noiseless belt frames; the order embraces purifiers, Gray's centrifugal reels, bolting and scalping chests, etc.

The Stillwell & Bierce Mfg Co. have taken the contract to put the Odell system into the John St. mills of William Shaw & Sons, Cork, Ireland. Messrs. Shaw & Sons have put the Odell rolls into their Kilnan mills, and are so well pleased with them, that they have ordered a complete line of ten machines for their other mill, which is to be built on the Odell system at once. The Stillwell & Bierce Mfg Co. will send competent men to Ireland to superintend its construction and to start the mill when finished.

The Stillwell & Bierce Mfg Co. have, the last week or ten days, started up a large number of mills which they have been building on the Odell system. Every one of them, without exception, did splendid work from the time they were started, and in many of the mills not a single cloth had to be changed or a single spout, and no flour rebolted. All the mills running on the Odell system are doing exceedingly well and most of them are away behind their orders.

Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., lately received the following orders from the mill furnishing trade: Chisholm Bros. & Gunn, Chicago, an Allis-Gray roller mill; Holcomb & Heine Silver Creek, N. Y., a No. 2 four-break machine, and a Gray's noiseless belt roller mill; Wilford & Northway, Minneapolis, eleven pairs Allis rolls in Gray's noiseless belt roller frames, for R. F. Pettigrew, St. Olaf, D. T., and a roller outfit for the Bismarck Mill Co., Bismarck, D. T.; Johnson & Jarrett, Des Moines, Iowa, three pairs of Allis rolls in Gray's noiseless belt frames; Lenoir Mfg Co., Lenoir, Tenn., a gradual reduction machine, and ten pairs Allis rolls in Gray's noiseless belt frames; Gt. Western Mfg Co., Leavenworth, Kas., a Gray's noiseless belt roller mill for Enje Clark, Arrapahoe, Neb.; a Gray's noiseless roller mill for W. F. Soden, Emporia, Kas.; and a Gray's noiseless roller mill outfit for D. McTagger, Liberty, Kas.; Chisholm, Bros. & Gunn, Chicago, a Gray's noiseless belt roller mill; Wolf & Hamaker, Allentown, Pa., fourteen pairs of Allis rolls in Gray's noiseless belt frames, for B. C. Kable, Kabletown, W. Va.; and six pairs of Allis rolls in Gray's noiseless belt frames for Thos. Strauss, Allentown, Pa.; Haggerty, Hunter & Co., Peoria, Ill., eight pairs Allis rolls in Gray's noiseless belt frames, for J. Kutewsky, Redfield, D. T.; Johnson & Jarrett, Des Moines, Ia., a Gray's noiseless belt roller mill for S. Kinworthy, Perry, Ia.

The Case Mfg Co., Columbus, O., have been awarded the contract of Sam'l Sherman, Kingsville, O., for a full gradual reduction mill on the "Case" system, using ten pairs rolls in connection with their breaks, scalpers, centrifugals, &c.

The Stillwell & Bierce Mfg Co., have recent orders from W. I. Green, Waterford, Mich.; C. E. Essenhain, Lyons, N. Y.; A. L. Williston, Northampton, Mass.; The Mattoken Mfg Co., Petersburg, Va.; Umbagog Pulp Co., Portland, Me.; S. W. Hitchings, Portland, Me.; Willard Russell, & Co., Bellows Falls, Vt.; Niagara Falls Hydraulic Power and Mfg Co., Niagara Falls, N. Y.; Fred Nell, London, Eng.; Berg & Bro., San Antonio, Tex.; Eugene W. Gray, Middletown Springs, Vt.; Robert Koan & Bro., Lynchburg, Va.; and Edward Waldon, Cobleskill, N. Y., for their celebrated Victor turbine water wheels.

The following are a few of the recent orders received by Edw. P. Allis & Co., Milwaukee, Wis., from the trade: Richards & Butler, Indianapolis, Ind.; A. E. Griffith, Auburn, Ky., twelve pairs of Allis rolls in Gray's noiseless belt frames; Halsen Bros., Allendale, Ill., eight pairs Allis rolls in Gray's noiseless belt frames; Louis Camp, Mt. Carmel, Ill., eight pairs Allis rolls in Gray's noiseless belt frames; Springfield & Memphis Mill Co., Springfield, Mo., eight pairs Allis rolls in Gray's noiseless belt frames; Willard & Northway, Minneapolis, W. Johnson & Bro., New Richmond, Wis., two pairs Wegmann's porcelain roller mills; Madella Mill Co., Madella, Minn., two pairs porcelain rolls in Gray's noiseless belt frames; F. A. Townsenc & Co., Columbia, D. T., two pairs Wegmann's porcelain rolls in Gray's noiseless belt frames; Bradford Mill Co., Cincinnati, Dronge & Douseman, Aurora, Ind., a Gray's noiseless belt roller mill; Gt. Western Mfg Co., Leavenworth, Kas., Vreeland & Sheldon, Beloit, Kas., a Gray's noiseless belt roller mill; Russell & Bailey, Wetmore, Kas., a Gray's noiseless belt roller mill; Slater Mill Co., Blanchester, O., A. E. McNeal, Bowersburg, Ill., a Gray's noiseless belt roller mill; Dehner-Wuerpel M. B. Co., St. Louis, a Gray's noiseless belt roller mill.

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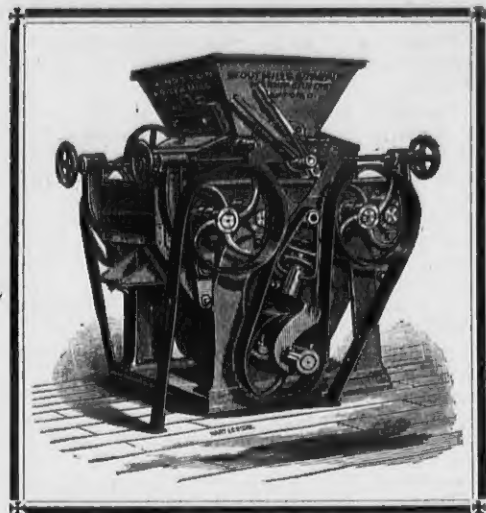
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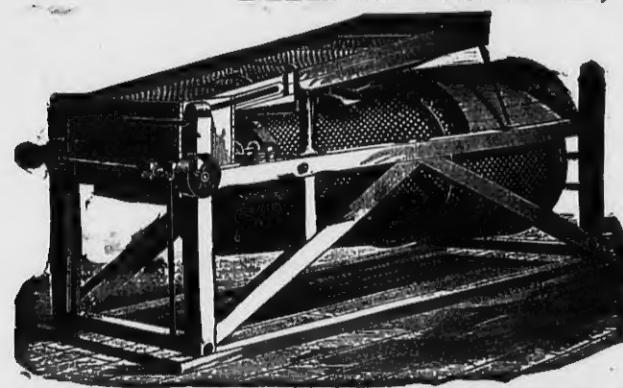
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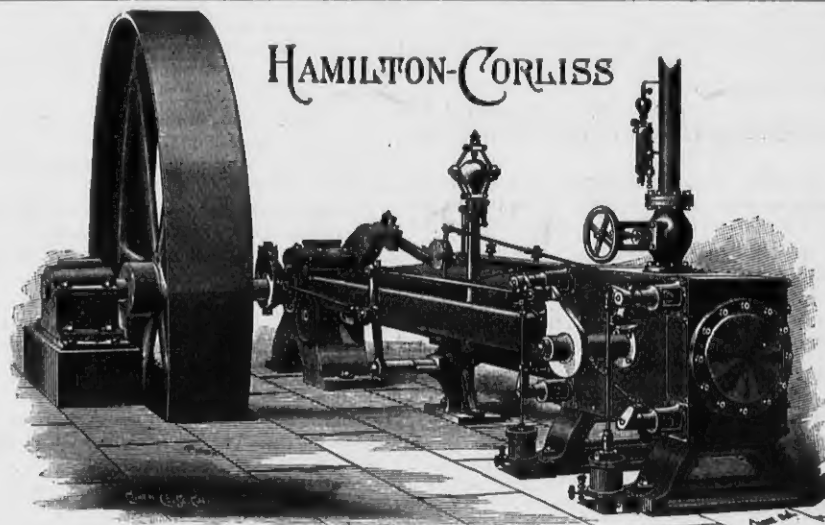
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